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ABSTRACT

This resource guide for initiating assessments of educational needs provides perspectives concerning possible and feasible ways to plan, organize, and implement such an assessment. The essence of needs assessment is discussed and a perspective on the effort is given. Crucial planning processes for a needs assessment are outlined and illustrative charts and procedures are presented. Ways in which to set goals, determine current conditions, analyze data, and implement change strategies are described. (JD)

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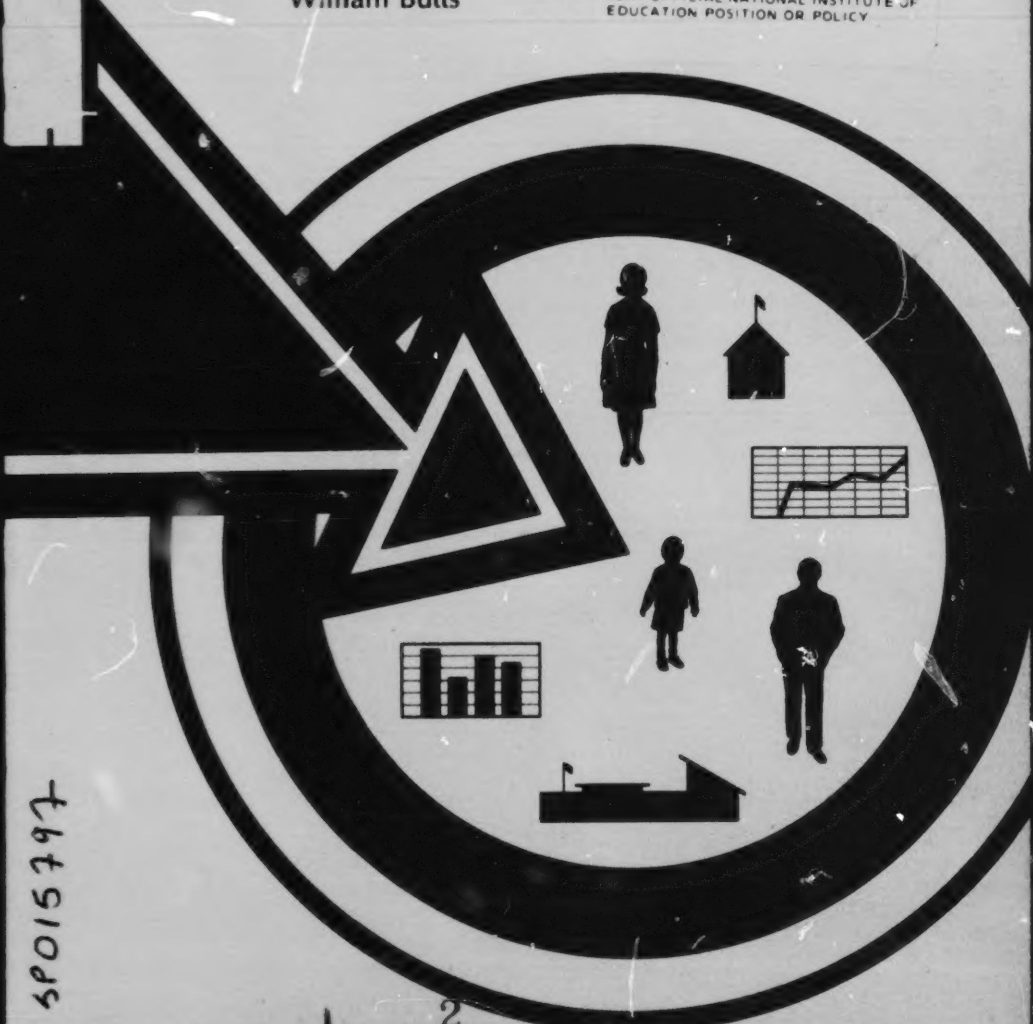

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1978
TEACHER CORPS DEVELOPMENTAL TRAINING ACTIVITIES

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THE CENTER FOR URBAN EDUCATION
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TABLE OF CONTENTS

Table of Exhibits, vii Foreword, xiii Preface, xv

SECTION I / The Process of Needs Assessment

1 Defining the Concept of Needs Assessment 3

The Concept and Rationale, 3 — Subjects and Contexts of Needs Assessment, 11 — Criteria for Evaluating the Needs Assessment Process, 17
Summary, 20 — References, 20

2 Planning for Needs Assessment / Process and Perspectives 22

Planning as a Systematic Process, 24
Systematic Planning for Needs Assessment, 29
Systematic Planning and Educational Improvement, 32
Collaborative Planning, 36
Summary, 51 — References, 51

3 Planning for Needs Assessment / Tasks and Organization 53

Pre-Planning for Needs Assessment, 54
Determining the Scope and Processes of the Needs Assessment, 58 — Organizing the Needs Assessment, 66 — Planning for Needs Assessment, 80
Summary, 83 — References, 83

4 Formulating Educational Goals 86

Identifying Goals, 86 — Prioritizing Goals, 95
Analyzing Priorities, 101
Summary, 102 — References, 102

5 Collecting Data on Current Conditions 104

Design and Plan Data Collection, 105 — Identify Data Sources, 107 — Select and/or Develop Instruments, 112 — Collect Data, 121 — Analyze Data, 121 — Some Criteria for Evaluation Assessment Systems, 122
Summary, 123 — References, 123

6 Prioritizing Educational Needs 125

Reporting Data, 125 — Prioritizing Needs, 132
Summary, 139 — References, 139

7 Converting Priorities into Programs 141

Specifying Objectives, 142 — Developing Strategies, 145 — Implementing the Program, 150
Summary, 151 — References, 151

SECTION II / Resources Supporting the Process

8 Analyzing Models of Needs Assessment 155

Models of Needs Assessment, 156 — Targeting Resources for the Educational Needs of the Disadvantaged, 157 — Phi Delta Kappa Model Program for Community and Professional Involvement, 159
The Worldwide Needs Assessment Model, 162
Houston Needs Assessment System, 164 — The CSE Elementary School Evaluation KIT: Needs Assessment, 167 — Educational Systems Associates Needs Assessment System, 169 — Job Analysis Model, Florida Community College Needs Assessment Model, 170
Bureau for Education of the Handicapped Conceptual Model, 173 — Summary, 173 — References, 175

9 Increasing Validity through Decisioning Techniques 176

Overview of Techniques, 176 — The Delphi Technique, 178 — Cross Impact Analysis, 185
Cross Purpose Matrix, 190 — Simulation/Gaming, 193
Trend Extrapolation, 195 — Scenario Writing, 196
Historical Analogy, 198 — Brainstorming, 199
Buzz Sessions, 201 — Fishbowl, 202 — Force Field Analysis, 203 — Summary, 204 — References, 205

10 Developing Instrumentation for Needs Assessment **207**

Variables of the Study, 207 — Instrument
Format, 208 — Needs Assessment Instruments, 259
Summary, 261 — References, 261

Appendix A / Listing of Potential Study Variables, 265

Appendix B / Selected Sources for Needs Assessment, 277

TABLE OF EXHIBITS

1 Needs Assessment Algorithm, 4
2 Extended Algorithm for Needs Identification, 14
3 Interaction of Contexts and Targets of Needs Assessment, 15
4 Needs Assessment Stages within Systemic Change Process, 16
5 Process Loop for Needs Assessment, 17
6 Evaluation Guidelines for Needs Assessment, 18
7 Systematic Planning Process, 27
8 Types of Information Relative to Systematic Planning, 28
9 Interaction of Planning Process and Needs Assessment Stages, 31
10 A Strategy for Facilitating Educational Change, 33
11 Potential Problems in Organizing the Steering Committee, 43
12 Conceptual Interaction among Organizational Units, 71
13 Actual Interaction among Organizational Units in PDK Model, 72
14 Project Organization Derived through Functional Analysis, 74
15 Interactions with Involvement Unit, 76
16 Management Assignments by Collaborating Group, 78
17 Interaction of Needs Assessment Stages with Targets of Change, 79
18 Organizational Unit/Target Interaction for Hypothetical Testing Schedule, 80
19 Illustrative GANTT Chart, 82
20 Activities Keyed to GANTT Chart, 84
21 Needs Assessment Algorithm, 86
22 Illustrative Goals from Phi Delta Kappa Needs Assessment, 89
23 Subgoals for Goal IX, 90
24 Partial List of Sarasota Goals, 91
25 Three Goals Selected for San Jose Study, 94
26 Rating Scale Used by Quality Education Program Study, 96
27 Rating Scale Used in Phi Delta Kappa Needs Assessment, 97
28 Rating Scale Used in Battelle Needs Assessment, 99
29 Phi Delta Kappa Goal Ranking Form, 100
30 Illustrations of Bar and Line Graphs, 101
31 Extended Algorithm for Needs Assessment, 104

32 Illustrative Planning Chart for Data Collection, 106
33 Sample Sizes Relative to Number of Sampling Units, 110
34 Sample Table of Random Numbers, 111
35 Classes of Data to Consider When Developing Indicators of Goals, 113
36 Some Indicators of Student Performance and Instruments for the Goal, "Participate in Society as a Responsible Citizen," 115
37 Some Common Means of Collecting Data, 116
38 Extended Algorithm for Needs Assessment, 125
39 Rating Scale Used in [illegible] Needs Assessment, 127
40 Rating Scale Used by New York University Teacher Corps, 128
41 Rating Scale Used in CFK, Ltd., School Climate Profile, 129
42 Laramie County Goal Analysis Instrument, [illegible]
43 Illustrative Format for Displaying Data on [illegible], [illegible]
44 Relation of Analysis of Current Conditions to Goal [illegible] in Pennsylvania Needs Assessment, [illegible]
45 Illustrative Report Format for Data on Goal Achievement, [illegible]
46 Quadrant Assessment Model, [illegible]
47 2 × 2 Matrix Displaying Goal Attainment and Goal Importance Data, 135
48 3 × 3 Matrix Displaying Data on Discrepancy and Goal Priority, 136
49 Format for Displaying Goal Utility and Priority Data, 136
50 Six Rating Scales for Prioritizing Needs, 137
51 Needs Prioritized by [illegible], 138
52 Steps in Systemic Change Process, [illegible]
53 Needs Assessment Algorithm, 142
54 Conceptual Model Depicting Ideal/Reality-Based Levels for Goals, 143
55 Planning Document Illustrating Current Conditions Compared with Ideal and Feasible Situations, 145
56 Strategy Assessment System, 148
57 Phi Delta Kappa Educational Planning Model, 160
58 Job Analysis Needs Assessment Model, 172
59 Bureau for Education of the Handicapped Conceptual Model, 174
60 Relationship between Participant Actions and Administrator Actions Using the Delphi Technique to Prioritize Goals, 181
61 Delphi Round 1 Questionnaire, 182
62 Delphi Round 2 Questionnaire, 183
63 Graphs of Responses of Round 1 and Round 2 of Delphi, 184
64 Delphi Questionnaire Round 3, 186
65 Cross Impact Matrix, 187
66 Cross Impact Analysis Matrix for NAEP Test Results, 189
67 Cross Purpose Matrix Showing Potential Impact from Emphasizing Certain Goals, 192
68 Force Field Analysis, 204
69 Categories of Variables, [illegible]
70 Interactions of Data Collection and Recording Procedures, [illegible]
71 Using Tallies to Record Behavior, [illegible]

72 Notational Instrument to Categorize Behavior, 218
73 Classroom Mapping, 219
74 Classroom Discussion Behavior, 220
75 Typical Rating Scale, 221
76 Classroom Observation Record, 222
77 Implications of Apathetic-Alert Pupil Behavior for the Classroom Observation Record, 223
78 Observation Schedule and Record (OScAR), 225
79 Flanders' Interaction Analysis Categories, 226
80 Coding Chart for Group Behavior, 227
81 Questionnaire for Administrators, 229
82 Sample Format for Sentence Completion Instrument, 230
83 Sample Format for Single Word Completion Instrument, 231
84 Sample Format for Listing Responses, 232
85 Sample Format for Listing and Ranking, 233
86 Learning Preference Profile, 234
87 Product Use in Needs Analysis, 236
88 Checklist Format, 236
89 Checklist with Open-Ended Format, 236
90 Demographic Checklist, 237
91 Sociogram, 238
92 Illustration of a Ranking Format Used for Collecting Data, 239
93 Team Leaders Needs Assessment and Resource Identification Instrument, 241
94 Illustrative Multiple Response Format, 242
95 Parent Opinion Teacher Survey, 243
96 Sample Rating Scale, 243
97 Student Analysis of Teachers, 245
98 Student Opinion Questionnaire/Scale Point Descriptions, 246
99 Sample Using Agree/Disagree Dichotomy, 246
100 Ranking Scale for Assessing Retreat, 246
101 Teacher Competency Inventory, 247
102 Two-Dimensional Scale for Rating Importance and Present Conditions of Goals, 248
103 Illustrative Guttman Scale, 249
104 Teacher Anecdotal Record, 251
105 Summarized Data Form for Documentary Information, 253
106 Relationships between Income Levels and Student Attendance, 254
107 Income Categories Used to Illustrate Tallies in Categories, 256
108 Categories of Information for Needs Assessment, 257
109 Sample Rating Scale for Lesson Plans, 258
110 Categories of Variables, 260

FOREWORD

Important to the effectiveness of any effort to improve education is the base upon which such efforts are constructed. Assessment of educational needs provides one such base. It has been used in schools and universities and found to be a reasonable approach to targeting on important needs.

In teaching children and youth, the diagnostic/prescriptive process is a powerful and necessary strategy. Needs assessment is analogous to diagnosis, but is directed toward institutional change rather than individual change. The needs assessment/implementation strategy is based on the same principles as the diagnostic/prescriptive process.

Needs assessments are effective ways to identify important goals as well as to promote wide participation in improving programs and practices. Including teachers, students, administrators, and parents in early planning efforts assures a greater degree of ownership and commitment so necessary to success.

Needs assessment as a basis for institutional improvement is not a recent approach. Many papers have been written about it. Numerous local and state studies have been conducted. However, each appears to be an independent, first-generation effort; few studies have relied on previous experience for improving their approaches.

The purpose of this document is to stimulate ideas leading to more effective needs assessments. It describes and illustrates a wide range of practices and encourages readers to build on them. The process of conducting a needs assessment need not be awesome to be effective, it need not be complex to be valid. But, it must be a meaningful effort to all those involved. Only then will it provide the basis for long-range changes in schools, colleges, and communities through a genuine sense of trust and ownership.

The materials which follow have been prepared for distribution at the 1978 Teacher Corps National Training Conference and the documents have been planned for use at that time. However, the real value—and test—of the materials will follow on through the several stages of Program '78 and Program '79.

Teacher Corps has long recognized the importance of needs assessment to good project planning and management. I know Robert Houston, who directed the preparation of this document, will welcome any suggestions or comments which you might wish to make over the next year or so. I sincerely hope the material will be of real value to you, to your colleges in your projects, and to the project itself.

James P. Steffensen
Chief, Program Development
Teacher Corps

PREFACE

Effective needs assessments are designed and completed by thoughtful people concerned with improving education. They do not necessarily need long, involved instruments, computers, or complex statistical techniques. Many have been completed by Teacher Corps directors and staff with few resources and with no needs assessment experts on their staff.

Assessments of educational needs help answer questions such as: What are the important goals for this school or college? How well are we currently progressing toward these goals? What are some strengths we can build on and some weaknesses we can eliminate to facilitate more rapid and efficient goal attainment? Where should a new project begin in improving a cluster of schools and a college?

Assessing educational needs and designing change-strategies based on needs are conceptually straightforward and logical proceses. Unfortunately, needs assessors fall into one or more traps as they implement the system: (a) the needs assessment instruments and analyses are too complex; (b) the process becomes so long and involved that sight is lost of the ultimate objective—to improve educational opportunities for students; (c) the process is mechanically completed, using someone else's system rather than tailoring a system specifically to local needs and demands, and instruments are used without regard for the appropriateness of their purpose, scales, or questions; (d) the assessment of needs is completed just to fulfill a contractual or managerial requirement, not to become the basis for further action; (e) the process does not involve all groups affected by it, with subsequent loss of credibility and support.

This resource guide was written to and for those persons who are initiating assessments of educational needs. It includes a wide array of ideas, illustrations, and suggestions to provide perspective concerning possible and feasible alternatives. It is a practical guide not to be read from beginning to end but to be used as a resource in planning and solving problems.

The volume resulted from an extensive review of more than 1100 ERIC documents, 100 journal articles, and 200 plans and reports on needs assessments. Many promising ideas and practices were gleaned from that study and from our own experiences in completing needs assessments.

Organization. The document is organized into two major sections—the first section focuses on the process of assessing needs while the second section describes models, techniques, and instruments that could support a needs assessment.

Section One is composed of seven chapters. Chapter One discusses the essence of needs assessment and sets the effort in perspective. Chapters Two and Three outline the crucial planning process for a needs assessment and include illustrative charts and procedures for completing one.

Chapters Four, Five, and Six emphasize the three phases of needs assessments—setting goals, determining current conditions, and comparing the results of the two analyses. Chapter Seven considers implementation strategies which follow the needs assessment.

The second section of the book includes several useful resources. A number of conceptual models of needs assessment, outlined in Chapter Eight, can help in deciding which steps to include. In the macro-design of the needs assessment, Chapter Nine describes techniques for making decisions and solving problems. Many were drawn from futures studies, and some may not be well known to educators. The last chapter includes illustrations of formats and variables used in needs assessment instruments. They will be particularly useful in determining the approach and format to use in developing or choosing instruments.

Dedication and Appreciation. An extensive effort such as this cannot be completed without the efforts of many people. Attempting to identify all of them may result in some being missed. To them we extend our apologies. However, we wish to express appreciation to and acknowledge the contributions of several persons.

William Smith, whose devotion to the education of children and youth and whose vision made this project possible.

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Julia Roberts, Program Development Specialist Western Kentucky University.

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Peggy Caravantes read copy and edited the manuscript. **Lynn Reyes**, who typed the first draft of the manuscript, is more than a typist. She exemplifies Teacher Corps ideals in her competence and humanness.

Floyd Waterman, Center for Urban Education, published the manuscript, making arrangements and effectively administering the process with impossible deadlines, which, as usual, he met. **Joan M. Krager** designed the format for the book. **Paul Mills** translated an idea into a cover design. **Jerome Freiberg** was always available and anticipated many of our needs for support resources.

Finally, to the following persons (listed alphabetically) who responded to a call from James Steffensen for illustrative needs assessment instruments and reports, the authors are most grateful.

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Completing a valid, sharply focused needs assessment is an educationally satisfying experience. Rooted in the same philosophy as diagnostic/prescriptive educational approaches, needs assessments lead to more effective programs. Many creative educators have completed excellent needs assessments studies. Because the purpose of this book is to support your efforts, it is dedicated to you, our readers, who make a difference in American education.

The Authors
June 15, 1978

SECTION I

The Process of Needs Assessment

1

Defining the Concept of Needs Assessment

Remember the story of the Boy Scout who took a little old lady across the street? It seems she did not need to cross the street, but he "helped" her anyway, much to her distress. Unfortunately, far too many educational activities have the same result.

Without consideration for the broader perspective or the specific needs of clients (students), plans are made and actions undertaken. Like the Scout, the motivation (a good deed for the day) may have high purpose and ideals; but if the motivation is not supportive of the needs of clients (little old ladies on street corners or students in schools), such actions may be counterproductive.

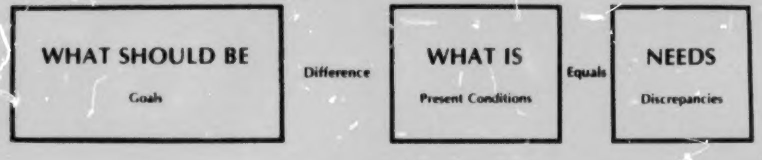
A needs assessment is a way to target the important elements that can improve the education of learners. It helps educators focus on real needs of clients, not on other extraneous factors. It also provides a basis for evaluating the effectiveness of subsequent actions.

The Concept and Rationale

Need is defined as the difference between *what is* and *what should be*, as shown in Exhibit 1.

To determine needs, *present conditions* are compared with *goals*. This definition of needs will be referred to throughout this volume and will be graphically repeated at various times. A description of needs assessment was included in a document relating to the Elementary and Secondary Education Act (ESEA):

Exhibit 1: Needs Assessment Algorithm



In its simplest form, a needs assessment is an attempt to determine the differential between the needs of children (desirable attitudes, behaviors and skills) as agreed upon by parents and staff, and the extent to which these needs have been met (present attitude, behaviors, and skills) as evidenced by various available data. It is thus determined which of the unmet needs will be addressed by the program.

A study is made to determine what environmental characteristics would help meet the needs and those which would inhibit. A decision is made as to which environmental factors will be incorporated into the program.

A study which includes identification and comparison of goals and present conditions is called a *Needs Assessment*. It is a systematic attempt to explicitly define the relevant factors, to collect objective data on those factors, and to make decisions based on results of data analysis.

The rationale for needs assessment is the basic tenet that *education exists to serve the needs of students and communities*. According to Kuuskraa (1971), "Needs assessment is the first, basic cornerstone of educational planning, (providing) essential information on the student educational and developmental problem areas most in need of attention." He also lists several outcomes which can make an assessment worthwhile. For example, a needs assessment can help decisionmakers

1. Determine whether or how well the students of the school are acquiring the skills, knowledge, and attitudes proposed by the school's educational goals.
2. Identify students who are not achieving either up to a given grade level or up to their potential.
3. Probe further into the underlying reasons that a child is not achieving with respect to an educational or developmental goal.

4. Decide what type of child-centered compensatory educational program is needed, whether an existing program should be modified or eliminated and how effective an educational program should be for meeting the needs of disadvantaged children.
5. Provide student developmental need and performance data for use in other community agencies responsible for serving disadvantaged.
6. Use more effectively their educational resources not only to serve disadvantaged but to develop children throughout an entire school system (Kuuskraa, 1971).

The purpose of a needs assessment is to provide direction for implementation efforts. In this, it is similar to diagnosis in the diagnostic/prescriptive process. Needs Assessment/implementation is concerned with *institutional change* while diagnostic/prescriptive processes are employed with *individual learners*. The target audience is different, but the theoretical constructs are similar.

Describing the benefits of a comprehensive needs assessment, Berrie (1976, p. 12) wrote, "Perhaps the most valuable outcomes are (1) the communication that it encourages among educators, community members and students and (2) the identification of what is occurring in the schools which, in turn, identifies the gaps in educational outcomes and processes."

Two Vignettes

Needs assessment is a useful and viable approach to improving school programs. Some needs assessments are relatively simple and straightforward while others are more complex. Two vignettes illustrate the concept in action.

Project-Based Vignette. The Teacher Corps project had just been funded in a rural West Texas community. Its proposal, submitted five months earlier, had been concerned with the education of Spanish-speaking migrant children. Because their parents followed the crops, these children were absent from school several months each year. Combined with the barrier of and the lack of emphasis on schooling in the home, the absences caused the children to do poorly in school, to fail grades, and to drop out of school as soon as legally possible.

All of these factors were generally known by school officials and were confirmed by the school district's records. Statistics on these students formed the basis for a general needs statement in the Teacher Corps proposal and for a tentative list of activities to be undertaken should the project be funded. Actions were contingent upon a successful proposal.

Once the project was funded and a staff employed, the first phase of the project began. The project director was committed to improving the achievement of migrant children, to wide input and decisioning from community and educational persons, and to basing actions on valid evidence. The primary question was where to begin?

First, a planning meeting was held involving the school superintendent, the Dean of Education from the Teacher Corps project-sponsoring university, the chair of the Community Action Committee, the principals of three schools involved in the project, and representative teachers from each school. The meeting lasted three hours and these decisions were made:

1. The project proposal was accepted as the basis for action with subsequent efforts designed to identify needs more specifically and to delineate plans more adequately.
2. One full day of the preschool conference was designated to be devoted to identifying specific goals in the three schools.
3. The director, principals, and teachers were formed into a planning committee for the daylong needs assessment session.
4. The College of Education named faculty members from each department to assess needs of teachers working with migrant children.
5. Parents from the three schools were to be invited to participate in a portion of the pre-school conference activities.
6. Students were to be released on October 10 so that student representatives, teachers, and parents could follow up the August preschool workshop.
7. The planning committee was scheduled to meet again in September to review August results and to function as a steering committee for needs assessment.

Subsequent actions were related to these plans. The subcommittee planned the preschool inservice day which included (1) a group process activity in which teachers described their aspirations for the coming school year; (2) a session in which teachers described their perceptions of the problems facing the teaching staff, administrators, and community; (3) a briefing by the director about the Teacher Corps project, including an invitation for teacher involvement; (4) an exercise in which groups of participants completed a Force Field Analysis* to describe how factors for and against the goal of helping migrant children could be guided to help attain better education for all students; (5) a Fishbowl* exercise in which a representative from each group discussed the problem and probable solutions while other participants observed. During the Fishbowl, recorders kept charts to show "Further Information We Need" and "Ideas for Improvement." The session concluded with (6) small group discussions about plans for activities to be completed prior to the October meeting; (7) the superintendent's praising the progress that had been made and challenging all of those present to make these goals a major priority for the coming school year.

The August meeting led to teacher visitations in student homes, invitations by community representatives and the local priest for parents to attend a discussion of some of the identified problems, discussions of the problems with selected students, analysis of attendance data by the district's instructional office, and administration of a diagnostic test.

These activities were specifically designed to answer the questions: (1) What goals do we advocate for this year and for the next five years? (2) What are current conditions with respect to these goals?

As the data began to accumulate, several courses of action became clear, and the power of a valid needs assessment became evident. Plans for action were made and implemented. Continual assessment of the implementation provided further refinement of the process.

Another perspective of needs assessment is illustrated in this second vignette.

School District-Based Vignette. Contrary to usual practice, the Director of Research in a large urban district did not wait for an appointment, knowing the Superintendent of Schools would want an immediate meeting. The results of achievement tests administered two months earlier to district students had just been analyzed, and the results were devastating!

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*See Chapter 9 for descriptions of a Force Field Analysis and the Fishbowl exercise.

For several years, achievement had been declining in the district; but in the previous two years, scores had appeared to stabilize. Educators hoped that a trend toward higher achievement was beginning. However, current test results shattered that illusion. Mathematics achievement was at an all-time low. When compared with national norms, the sixth grade students were at the twenty-fifth percentile and third grade students at the twenty-eighth percentile. These district-wide averages obscured the wide range of achievement among the schools—from a low average of eighth percentile for an inner-city elementary school to a high seventy-fifth percentile for a suburban school.

Test results had spotlighted a need—one that required careful and systematic attention *now*. The issue was what to do next. *Low achievement was a symptom—an indicator, not the cause of the problem.* School professionals wanted data on improving mathematics achievement. Thus began a needs assessment which focused on improving that achievement. Some of the steps taken in the process of assessing needs are listed below:

1. A content analysis was made of the questions students most often missed on the achievement tests.
2. Teachers were asked when they taught mathematics, how much time they devoted to the subject, what their own professional backgrounds in mathematics education were (particularly the diagnostic/prescriptive process), and what their hunches about causes for low achievement were.
3. A content analysis was made of the mathematics textbooks used in the school district.
4. Parents were involved in a series of group meetings and in individual reactionnaires about their perception of school outcomes (results) and processes, home study habits of their children, and ways parents could assist.
5. Students, in a series of open discussions, suggested reasons for their not doing better in mathematics and ways they could improve.
6. School and district-wide task forces were organized to glean these data

and to suggest ways to improve mathematics achievement.

7. An analysis was made of how mathematics could be useful in helping learners to survive and to contribute outside of school.

A comprehensive plan of action was instituted. Supplementary textbooks were purchased and placed in schools. A team of teachers developed special materials based on interests and needs students had identified during their discussion sessions. Areas of weakness identified by the tests were strengthened with additional instruction. A nearby university presented a tailored inservice program for teachers on the7 diagnostic/prescriptive process in mathematics. The curriculum was reorganized to allow an additional ten minutes each day for personal improvement. Criterion-referenced tests were instituted to determine student progress toward new achievement standards. Upecial teachers were assigned to work with low-achieving students while counselors were trained to help these students improve their self-concepts.

These vignettes illustrate the power of needs assessments:

1. *Improvement programs focus on real needs.*
2. *Needs are more specifically delineated through systematic data collection processes.*
3. *Collaboration among professional educators, students, and community leads to stronger commitment to change.*
4. *Needs assessment is not a one-time process but a series of activities leading to greater definition of goals and current conditions.*
5. *A wide range of strategies may be instituted once the specific needs are identified.*

The impetus for beginning a needs assessment may be a problem, such as low achievement scores in mathematics, drugs sold to high school students, racial tension leading to a confrontation at a basketball game, high dropout rate, student-expressed concerns about irrelevant curriculum, or passage of minimum competency legislation. Other needs assessments result from a sensitive staff which decides to improve the school or college. Others result from a new school superintendent or principal, a new dean of education, the closing of a school, a new state or federal law (such as P. L. 94-142 that requires certain benefits for exceptional/handicapped students), or increased involvement of the teachers' association.

Wide Application

Some assessments of needs have related to a total school district; others, to a single school or classroom in a particular building. Some have been general needs assessments which dealt with a broad unfocused range of potential areas for improvement or accomplishment; others have been targeted on specific areas of need.

Needs assessments are useful to Colleges of Education and other educational institutions as well as to schools.* In colleges of education, needs have focused on a specific problem (migrant children), a program (undergraduate education), a department (Curriculum and Instruction), or the entire college (typically called a mission study and often tied to accreditation visits). Indeed, projects, such as Teacher Corps that relate school and college change efforts, are conceptually obligated to assess the needs of each institution and their inter-institutional relations. The breadth and the area for consideration vary widely; however, the approach used in assessing needs involves similar processes and systems.

In the first vignette, the school was concerned with the education of its Spanish-speaking migrant children. The College of Education, working with the district, decided to use this concern as an opportunity to analyze and improve its teacher preparation programs.

A survey of school districts within twenty-five miles of the university foune that twelve percent of the students were Spanish-speaking and three percent were children of migrant families. Twenty-nine percent of the college graduates were assigned to teach these children. Using these data as motivation, the Dean and the Teacher Corps director initiated a study of the undergraduate and graduate curricula. Each department examined its requirements and the content of its courses for relevance. Fifteen graduates were invited to a half-day workshop on the program. Faculty visited the Teacher Corps project site schools, interviewed children and teachers, and became acquainted with conditions and expectations.

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*For two descriptions, see Murphy and Martin (1977) and Morgan and Feldman(1977).

The first goal of the college faculty was "to develop a program that would prepare teachers to work more effectively with Spanish-speaking migrant students." As the study progressed, this goal was translated into more specific objectives related to adolescent growth and development, instructional strategies in secondary reading, studies of motivation and change processes, bilingual education, and Spanish.

The needs assessment at the college was broadened from its narrow focus on three schools, migrant children, and inservice education to include both graduate and undergraduate programs which emphasized education for children with problems. It led to inservice education for college faculty, a regular series of interactions with practicing teachers, and vital new professional education programs.

All of this was accomplished because the college's administration and faculty took the opportunity to reexamine current practices and outcomes through a needs assessment. Required for this process was commitment of time, energy, and resources. While the beginning was rather modest, the changes were impressive within a two-year period.

Subjects and Contexts of Needs Assessments

Subjects of Needs Assessments

Systemic processes and change strategies incorporate three subjects or targets of the needs assessment:

1. Attitudes, perspectives, values, and behavior of people who are concerned with education.
2. Programs of instruction, and
3. Organizational and communications structures within which the educational programs operate (Houston, 1972).

The first target, *people*, is the most important one and the ultimate goal for change processes which proceed from the needs assessments: Three classes of people are typically included in needs assessments: (a) students in all educational institutions; (b) educational personnel, including teachers, aides, administrators, and auxiliary or support staff; and (c) community members, including parents and others. Each of these groups becomes not only the object of the needs assessment (What are their goals, needs, present status?) but also a source of data (What can each contribute to an understanding of the system needs?)

The second target, *programs*, primarily includes the instructional programs related to people. These include (1) curriculum and instructional strategies for school students, (2) inservice and continuing education programs for educational personnel, and (3) educational opportunities for adults (e.g., an auto mechanics class for women, conversational Spanish, stained glass sculpture, high school equivalency programs for non-graduates, and citizenship classes for naturalized U.S. citizens). In needs assessments, each of these program areas is considered in terms of its current status, goals of an ideal system, and potential priority areas for improvement.

The third target of needs assessments is the *organization*, *communication*, and *governance structures* of which the schools are a part. Some school settings are organized into classes, grades, or instructional groups. For part of the day, students may be in large groups and at other times in small tutorial settings. They may be assigned to content specialists and may relate to five or more teachers each day, be in self-contained classroom at all times, or spend part of the day with special resource teachers. The combinations and permutations of organizational structures have resulted in myriad practices in schools.

Equally diverse and complex is the organization of school personnel. The methods of assigning teachers and the nuhber and variety of teachers have increased in the past decade; so too have the number of support persons—both in a school and in the central office.

While the governance structures of schools have remained essentially the same (with local boards of education), intermediate school units, such as county school districts and regional service centers, generally have increased in scope, power, and potential for delivering useful educational services. State and federal education agencies have also expanded their organizations and their influence on local programs.

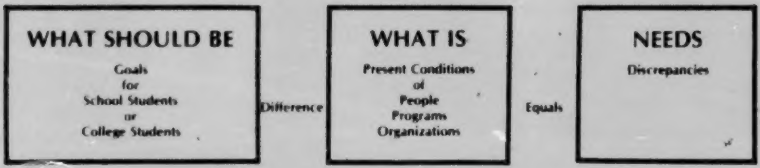
Since schools are not isolated institutions but are interrelated with other institutions in the area, these institutions may also need to be considered in the needs assessment. They include such groups as neighborhood property owners' associations, businesses, and governmental social agencies as well as those groups with direct contact with schools, such as parent-teacher organizations. Professional organizations and their goals and programs also affect the programs and practices in schools.

Because of the number of institutions involved in education, the assessment of the organization, communication, and governance structure must take into account interactions that are *intraschool, interschool,* and *between schools and other institutions.* These relationships are often obscure, even though organizational charts show clearly defined boxes and authority lines. Infornal channels, particularly in communication, are often as powerful as formal ones. Since points of contact between institutions are often places where friction is likely to occur, they should be considered carefully.

While focusing on the school context, this analysis is equally appropriate for colleges and universities. The persons involved include students and educational personnel; programs are related to preservice and inservice development of educational personnel; and their organization, communication, and governance structures are the object of and context for needs assessments and change strategies. Similarly, community-oriented needs assessments target on people, programs, and organizations.

The three targets of needs assessments are not uniformly considered in each phase of the study. Exhibit 2 is an exten-

Exhibit 2: Extended Algorithm For Needs Identification


WHAT SHOULD BE
Goals for School Students or College Students
Difference
WHAT IS
Present Conditions of People Programs Organizations
Equals
NEEDS
Discrepancies

sion of the needs assessment algorithm previously presented. It has been modified to account for the differential treatment of the three targets.

Since the education of students is the fundamental purpose for schools and colleges, only this target is considered in specifying the goals to be achieved. However, all three targets (people, programs, and organizations) are considered in assessing current conditions. For example, in the second vignette, the school district with low achievement could have as a goal: "to increase student reading achievement," but it would not have as goals: "to add new reading teachers to secondary schools," "to provide inservice education for teachers," or "to supplement instruction with additional reading textbooks." These are not related to student change.

The distinction between goals related to students and goals related to other targets is an extremely important one. Too many needs assessments fail to distinguish between *causes* and *symptoms*; focusing only on student goals helps maintain this distinction.

All too often data are obtained about the symptoms of problems but neglect the underlying causes. For example, one school system studied its dropout problem by assessing its absenteeism, repeated failures, and grades as reported in permanent record files. While these may be indicators of students who will drop out of school at an early age, they are only symptoms, not the causes for the dropout. The latter requires the school to assess such factors as needs of individuals who are potential dropouts, relevance of the school program, and relationships of school to other parts of the community. A carefully formulated and documented needs assessment provides information that enables the development of relevant program activities and priorities, demonstrating a direct relationship between identified causes and proposed solutions.

Contexts for Needs Assessments

Educational needs assessments typically involve three types of institutions: (1) a school district, a school or group of related schools, or a department or grade-level within a school; (2) a college or university concerned with teacher education; and (3) the community(ies) in which the schools are located. In each, people, programs, and organization are considered. Exhibit 3 illustrates the interaction of the three targets of needs assessments and the three contexts.

Exhibit 3: Interaction of Contexts
and Targets of Needs Assessment

Context for Needs Assessments	Targets of Needs Assessments		
	People	Programs	Organization
School	X	X	X
Colleges	X	X	X
Communities	X	X	X

Each intersection (X) of a target and a context of a needs assessment represents an area of study. As the system is conceptualized, each of these nine target/context areas can be considered in isolation as well as in interaction with all the others. Dealing with any one of them, however, is likely to affect the others. This is particularly true when a cluster of schools, a college, and a community team jointly make changes in their programs. Needs assessments at the college, for example, affect those being conducted in the schools and should be conceptually related. Likewise, school efforts affect the community and other colleges.

Stages of Needs Assessment

Application of the concept of needs assessment leads to several basic stages in its implementation. The interaction of each stage with the targets of the process is illustrated in Exhibit 4. After needs are assessed, objectives and strategies for meeting these needs are developed and implemented, then evaluated and revised as necessary. Since the targets are interrelated, they are considered in every stage with the exception of Stage One, Goal Formation.

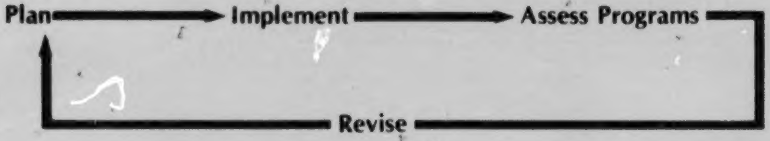
Three phases of the change process are illustrated in Exhibit 4, *Assess Needs, Develop and Implement, and Evaluate and Revise.* This book is concerned only with the first phase—*Assess Needs.* This basic phase leads to actions in the other two. Within each of these phases is an embedded process loop. *Needs assessments* are planned, implemented, assessed, and revised on the basis of feedback. *Development and implementation* of recommendations derived from the needs assessment also follows the same steps. Plans are made for development of resources and implementation of processes; these are implemented, tested for effectiveness, and revised.

Exhibit 4: Needs Assessment Stages within Systemic Change Process

	STAGES	TARGETS		
		People	Program	Organization
Assess Needs	1. Goal Formation	X		
	2. Data Collection on Current Conditions	X	X	X
	3. Needs Analysis	X	X	X
Develop and Implement	4. Objectives Specified That Are Based on Priority Needs	X	X	X
	5. Strategy Development	X	X	X
	6. Program Implementation	X	X	X
Evaluate and Revise	7. Program Evaluation	X	X	X
	8. Revision	X	X	X

Evaluation processes and instruments are also planned, implemented, assessed, and revised.

Exhibit 5: Process Loop for Needs Assessment



These process loops encourage refinement of the procedures and the instruments being used in the change process. This is important to a project designed to bring about change.

Needs assessments that attempt to identify *all needs* or areas for improvement are likely to be unsuccessful. Such comprehensive changes require a long process of identification without apparent progress being made; they result in a negative view of schools; and they tend to inhibit rather than facilitate progress.

The needs assessment should lead to a series of change-process goals that are delineated in ever-increasing specificity. In the beginning of successful change efforts, quick and positive changes are vital. Readily implementable gains stimulate the overall effort. While a series of stages is described herein, it should be noted that they are neither *linear* nor *singular*. They tend to be cyclical, leading back toward reconceptualization and refinement of needs and strategies but with an almost infinite number of smaller refinements based on feedback from analysis of the system. Further, the more effective systems involve multiple levels of needs identification—some directed toward short-range objectives; others dealing with more perpasive needs or involving more complex and long-range strategies.

Criteria for Evaluating the Needs Assessment Process

An early decision concerning needs assessments relates to the qualitative assessment of the process itself. Several sets of criteria provide models for those charged with this responsibility. Kuuskraa (1971) stated the basic criterion in these words: "The needs assessment approach must meet one acid test: it must provide sound, useable information on which to base program development and planning."

Benson, Croft and Hybertson (1973, p. 3) focused on the procedures to be employed as well as on the outcome:

> Needs assessment, to be of value to a school community, must not be so obtrusive and challenging by its nature that it intimidates the potential user. It must be analogous to a snapshot picture: it must be expeditiously obtained and clear in its image. Similarly, a needs assessment process should be accomplished within a reasonable period of time, yet accurately portray its findings.

Kaufman (1972, p. 29) listed three criteria which characterize needs assessment systems. They were concerned with the validity of the processes used relative to the desired outcomes:

1. The data must represent the actual world of learners and related people, both as it exists now and as it will, could, and should exist in the future.
2. No needs determination is final and complete; we must realize that any statement of needs is in fact tentative, and we should constantly question the validity of our needs statements.
3. The discrepancies should be identified in terms of products or actual behaviors (ends), not in terms of processes (or means).*

The needs assessment guidelines promulgated in Exhibit 6 provide a viable set of criteria. If applied to university programs, some modification would need to be made.

Exhibit 6: Evaluation Guidelines for Needs Assessment
Source: Educational Systems Associates, 1972

1. The needs assessment strategy should conform to the following considerations about planning, management, and resources of local education agency.
   a) Are the *personnel* involved in the program knowledgeable about evaluation, systems design, survey research, statistics and management theory, sampling and data-processing techniques?

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*Roger A. Kaufman, *Educational System Planning*, © 1972, p. 29. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

b) Have sufficient *funds* been allotted to adequately accomplish comprehensive educational needs assessment?
c) Has there been community-wide *involvement* in the planning?
d) Are lines of *communication* and *responsibility* clearly established?
e) Are all parties *committed* to the needs assessment and its potential results?

2. The Strategy used should meet the following criteria:
   a) Does the overall *concept of educational needs assessment define an educational need* as the difference between the current status of the learner and the desired learner outcomes?
   b) Does the assessment strategy include both *long- and short-range* objectives?
   c) Does the strategy include *specific activities* which have been designed to *achieve each objective* included in the strategy?
   d) Does the strategy include a *time frame* for accomplishing each activity?
   e) Is the strategy sufficiently constructed so as to consider all the *required elements?*
   f) Are *student learning goals* established for the purpose of determining children's needs through the educational needs assessment?
   g) Are the student learning goals behaviorally stated and representative of *cognitive, affective,* and *psychomotor* learning?
   h) Are the student learning goals sufficiently refined to make them *measurable objectives?*
   i) Does the strategy include provisions for collecting data about student learning objectives into three categories:
      1) perceptions of the *community* (including business and industry), educators, and the learner with regard to the relevance and importance of these objectives;
      2) *criterion-based* test instruments to determine the extent to which student learning objectives have been achieved;
      3) relevant *demographic* data about the learner.
   j) Does the strategy include provision for a data sample from which *validity* can be determined (i.e., are we measuring what we purport to)?
   k) Does the strategy include provision for a data sample from which *reliability* can be determined (i.e., are we measuring accurately and consistently)?
   l) Does the needs assessment strategy include provisions for collecting appropriate information on specific sub-populations?
   m) Does the strategy include provisions to assure that the data collected is manageable and current?
   n) Have the instruments which are designed to collect data been *tested* thoroughly on a pilot basis?
   o) Have procedures for analyzing *data* been thoroughly tested to determine if all data collected can be appropriately utilized and treated?
   p) Can the *conclusions* drawn from the interpretation of data be supported?
   q) Are there *logical and defensible procedures* established for determining *criticality* of education needs identified by data for the local (and state) educational agency?

Summary

Assessing the needs of school or college students is a vital process in improving education. The first stage in the process is to determine what ideal conditions or goals are desired. This is discussed in greater detail in Chapter 4. The second stage in the process, considered in Chapter 5, is to assess present conditions. Finally, the discrepancy between current conditions and goals is determined. This third stage is the subject of Chapter 6.

Planning for the needs assessment is discussed in Chapters 2 and 3 while Chapter 7 considers the stages following the needs assessment.

In the second section of the book, three chapters provide support resources for the needs assessment. Chapter 8 outlines several models of needs assessment systems while Chapter 9 describes processes that could be used in facilitating decision-making during needs assessments. Drawn primarily from futures studies, they provide useful resources in making a study of needs. Finally, Chapter 10 discusses study variables and instruments for data collection.

This book was written for those persons who seek a guide to designing and developing needs assessments or a reference for refining their assessments. Because several alternative approaches to the same problem are described in some cases, the reference at times may become ponderous. However, it was written primarily for persons with little or no experience in the field.

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2

Planning for Needs Assessment Process and Perspectives

A large urban school district had just been awarded a federal grant. The initial action taken by the district's Assistant Superintendent for Federal Programs was to appoint a bright, young director who would assume responsibility for planning and organizing the project to meet the objectives for the initial planning year.

Objective I in the proposal was to conduct a needs assessment. After identifying project staff members, the director made arrangements for meeting this objective. First, a friend in another state was contacted to forward the instruments and a computer program that had been used in conducting a needs assessment for another federally funded project. The director was very pleased. Having these instruments and the computer program would save untold hours and resources.

The next step the director took was to set up a steering committee to assist in disseminating information about the needs assessment and to help establish objectives for the participating schools. Two PTA presidents from the included schools were invited to serve on the committee along with the Dean of Education from a local university. The director also asked the president of the local classroom teachers' association to be a member. The school district was represented by the Assistant Superintendent for Federal Programs and the president of the student council in the participating high school was asked to serve. Thus, committee membership met federal guidelines that planning include representation from the community, the schools, the teaching profession, and the institution of higher education—partners in the educational process that would be involved in and affected by the activities of the project.

At the first meeting, the steering committee reviewed the instruments selected for needs assessment and received a detailed description of the computer program to be used in the data processing. The advantages of using the existing instruments and program were discussed. The assistant superintendent complimented the director on the preparation and decisions, and it was moved that the project be continued as the director saw fit. The committee gave unanimous approval.

Multiple copies of instruments were made for parents, teachers, and students in the participating schools. These instruments were delivered to the principals of each school with the request that they be distributed and collected upon completion. The director was proud that the needs assessment was proceeding so smoothly, would be finished very early in the planning year, and had taken so few resources.

Then trouble began. One principal called the assistant superintendent to inquire about "this mound of paper that has been delivered . . ." and refused to distribute the instruments without more information. Some incidents reported in schools where the instruments were distributed included:

1. A member of the local chapter of a national teachers' union called a meeting to organize a formal protest because they were not involved in the development of the needs assessment.
2. Innumerable parents called principals inquiring about the purpose and use of the instrument they had received.
3. Approximately fifty percent of the instruments were returned uncompleted because parents or students did not understand the wording or language of the instruments.
4. The Director of Community Relations for the district wrote a memo to the superintendent protesting the distribution of instruments in the community without his knowledge and involvement.
5. Teachers complained to principals that the items on the instruments did not focus on the relevant areas of student needs nor on teachers' perceived needs for staff development. Some also complained about the instructional time required for students to respond to the instruments.

While this incident is exaggerated, it does point out the importance of planning for the needs assessment and the way initial decisions can affect the entire needs assessment process. English and Kaufman (1975, p. 14) wrote, "A great deal of planning should precede the needs assessment. Questions about involvement, how the idea will be introduced, anticipating problems, and developing the capacities to handle the data when gathered are only a few of the queries that must be answered."

This chapter focuses on several important aspects of needs assessment that should be considered before planning is initiated. These include a process for planning, a discussion of the relationship between needs assessment and institutional change, and the involvement of individuals and groups affected by the needs assessment. Specifically, the chapter will address

1. Planning as a Systematic Process.
2. Needs Assessment and Educational Improvement.
3. Collaborative Planning.

As often as possible, specific examples of the topics addressed will be included to give needs assessment planners ideas that can be used in local projects.

Planning as a Systematic Process

Any endeavor which aims to validate or improve educational practice presents a complex problem. As pointed out in Chapter 1, such endeavors involve a number of institutions and role groups and are imbedded in the social milieu in which schools carry out their functions. Cooper and Weber (1973) highlight the complexity of such problems by identifying some reasons that many educational improvement projects are unsuccessful:

1. There is a limited conceptualization of the total project.
2. Most projects are designed without a research base.
3. Goals, when stated, are too vague.
4. Changes and innovations are made in piecemeal fashion.

5. Most decisions are made lacking an adequate data base.
6. Programs remain largely unresponsive to change in the internal and external environments.
7. Programs are not client-oriented.

In addition to these reasons, two others are evident in the failure of needs assessment projects:

1. Failure to involve and secure the commitment of key individuals who will be instrumental in administering and carrying out improvement projects (or needs assessment).
2. Failure to consider the reality of constraints in terms of time and resources.

All of these reasons provide a guideline for planning and can be used as criteria on which to base the planning process. They also emphasize a rationale for extended planning for needs assessment and for using a systematic process for decision-making.

In general, a systematic planning process is defined as a rational, logical process involving continuous data-based decision-making. A major step is the development of a document which illustrates a schedule of events for conducting a needs assessment and for using its results in educational improvement. Such a document includes specific tasks to be completed, resources needed, people to be involved, needs assessment organization, and a description of how needs assessment relates to the critical components of educational institutions.

According to Kaufman (1977, p. 60), a systematic planning process is "a generic problem-solving tool." That is, it not only *can* but *should* be applied to any problem or problem phase for which a systems approach is appropriate.

A systematic planning process includes Identification and Justification of a Problem, Analysis of the Problem, Collection of Relevant Information, Generation of Alternative Solutions, Selection of the Best Alternative Solutions Based on Available Information, Development of Strategies to Implement the Selected Alternative, Implementation of the Strategies, Collection of Data About Strategy and Solution Effectiveness, and

Decision to Continue with the Solution or to Select Another. Exhibit 7 shows the flow of steps in this process.

The *primary concern in systematic planning is the development of adequate information for decisions.* This can be illustrated by referring to the vignette described at the beginning of the chapter. In preparing for the needs assessment, the director had identified a problem—What instruments can be used to collect data for the needs assessment? A strategy of sorts was identified to solve the problem. If the systematic planning process had been followed, the director would have had more information on which to base decisions which might suggest a much different solution to the problem. Examples of the types of information that could have been used for this problem—identifying needs assessment instruments in each step of the planning process—are shown in Exhibit 8.

If the director in the vignette had employed a systematic planning process and had based decisions on the type of information described above, several problems could have been avoided. With the information collected, the director could have developed a schedule of events showing what would be accomplished, when it should be initiated and completed, what resources were needed, and who was responsible for carrying out specific tasks. The decisions made could have reflected input from a number of individuals or groups to be affected by the needs assessment while resources for carrying out the project could have been available during implementation of the plan. With information collected during implementation, decisions could have been made about the effectiveness of the strategy and about the feasibility of the solution. Most important, data would have been available for justifying the problem addressed and for supporting the decisions made. Also important is the fact that many of the people affected by the needs assessment would have been involved in data collection, and information about the project could have proceeded in a much smoother fashion and with fewer repercussions from those involved.

Having adequate information, however, does not guarantee that quality decisions will be made. Observing some cautions

Exhibit 7: Systematic Planning Process

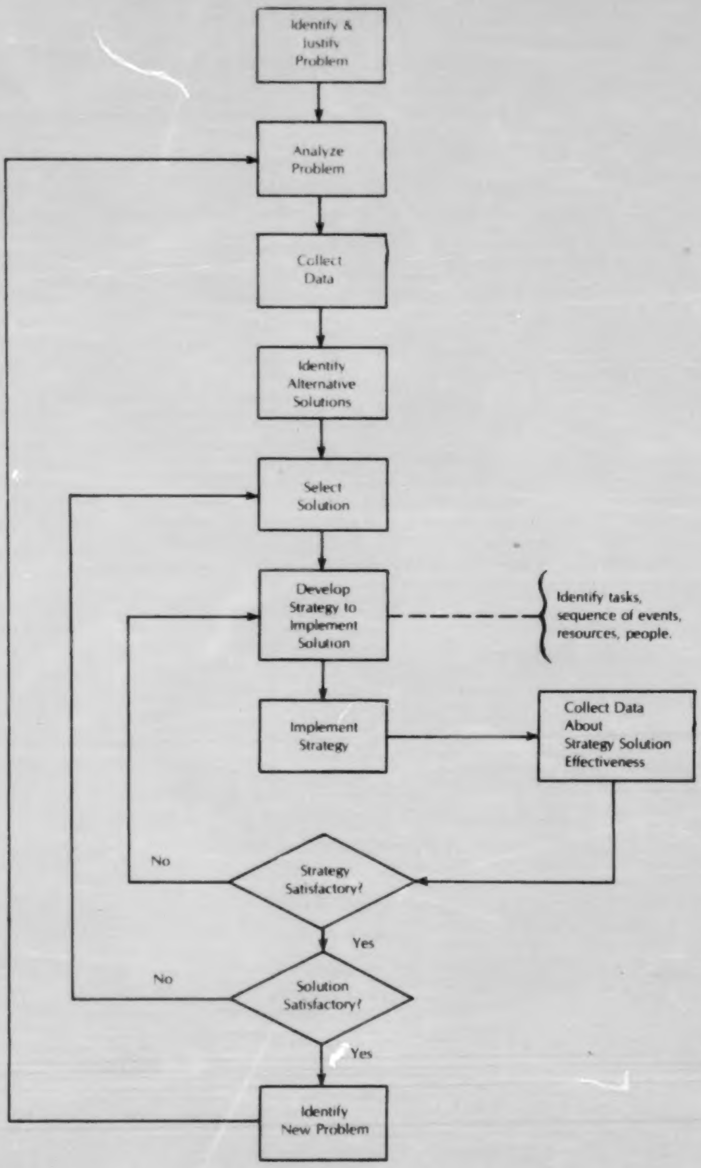

Identify & Justify Problem
Analyze Problem
Collect Data
Identify Alternative Solutions
Select Solution
Develop Strategy to Implement Solution
Identify tasks, sequence of events, resources, people.
Implement Strategy
Collect Data About Strategy Solution Effectiveness
No
Strategy Satisfactory?
Yes
No
Solution Satisfactory?
Yes
Identify New Problem

Exhibit 8: Types of Information Relative to Systematic Planning

PLANNING PROCESS	EXAMPLES OF RELEVANT INFORMATION TO BE COLLECTED
1. Identify and Justify Problem	—Is the problem critical to the success of the needs assessment? —Is it necessary to resolve this problem in order to conduct the needs assessment?
2. Analyze Problem	—What are the critical factors affecting selection of needs assessment instruments? —How will instrument selection affect the collection of data? the overall needs assessment process? —Who should be involved in the selection of the instruments?
3. Collect Data	—Who will be responding to instruments? —What are the characteristics of the populations that will respond to the instruments? —What are the most essential areas of school programs about which to collect data? —What are some of the reasons for failure of existing programs? —What groups express dissatisfaction with existing programs?
4. Identify Alternative	—Are there existing instruments that can provide data? —Will existing instruments require modification to fit within the framework of this needs assessment? to be more appropriate for populations to be tested? —Will new instruments have to be developed?
5. Select Solution	—Which solution is most attractive in terms of the use of data to be collected? —Which solution is most feasible in terms of available resources? time constraints? —Is expertise available for modifying existing instruments? for developing new instruments?
6. Develop Strategy	(Assume solution selected was to develop new instruments) —What are the specific tasks (writing and refining items, developing interview protocols, etc.) that must be accomplished in the development of instruments? —In what order should these tasks be initiated? completed? —How much time can be allocated to instrument development? —What resources (secretarial support, computer time, supplies, consultants, etc.) will be required? —What types of data are required to determine the effectiveness of the instruments? —Where and with whom should the instruments be piloted? —How will validity and reliability of instruments be determined?
7. Implement Strategy	—Is instrument development proceeding on schedule? —Were adequate resources allocated for instrument development?

can greatly facilitate planning. An International Business Machines planning manual (1963, pp. 16–17) and other sources have listed several concern areas in systematic planning.

These sources list *improper definition of the problem* as an impediment to planning and decision-making. Failure to define the problem in terms agreeable to everyone, to see all related aspects of the problem, to distinguish between evident and actual causes, to recognize the value of communication among persons affected, and to recognize blind-spots and prejudices are considered impediments to problem definition. Other concerns associated with problem definition involve perceiving the problem as unimportant and refusing to accept new information about the problem.

A second area of concern is *ineffective data collection.* Failure to involve people affected by the problem, to recognize that feelings are as important as facts, to assess needed resources, to interpret data, to relate them to critical aspects of the problem, to make assumptions, and to distinguish between facts and assumptions will seriously hamper the collection and application of useful data. Another concern about data collection is the inability to determine how many data are needed to support decisions and failure to recognize that complete data collection is impossible.

A third impediment is the *failure to develop and consider alternative solutions.* Failure to identify enough alternatives; to consider the effects, implications, and consequences of each alternative; to establish criteria for alternative selection can limit the planning process and the potential for success.

These impediments are particularly critical for needs assessment. Because so many institutions, groups, and people are affected, a major danger is getting so involved in the planning process that the needs assessment never gets out of the drawing board stage. However, being forewarned about possible hang-ups should help planners avoid many snags before they happen.

Systematic Planning for Needs Assessment

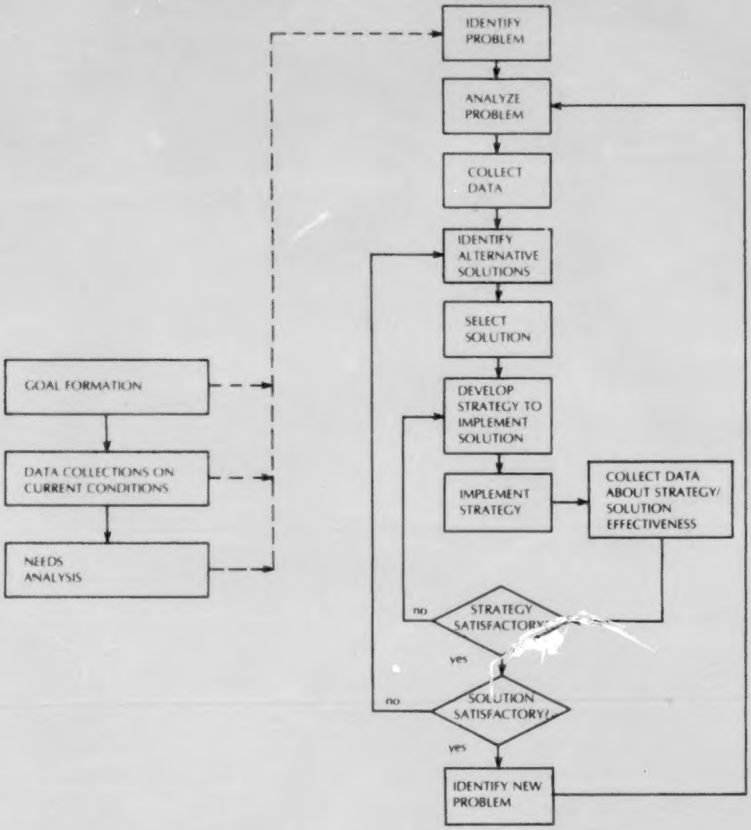
Systematic planning points out the types of decisions which should be made and the types of information helpful for making decisions. It also provides some guide for the sequence of decisioning. *It does not, however, identify the problems to be addressed when planning for needs assessment.* Application of a systematic planning process to the stages of a needs assessment model *can* help identify these problems. While it is the responsibility of each project to identify the stages and their sequence in assessing needs at a specific site, the model contained in Chapter 1 can be used to illustrate the relationship between systematic planning and needs assessment.

Each stage of the needs assessment model can be considered a "problem area." If the director in the vignette had used this needs assessment model as a guide, several other problems besides the identification of instruments would have been apparent. The director might have also realized that the problem of instrument identification was out of sequence.

In developing plans for the needs assessment, *each step of a systematic planning process should be carried out for each stage of the needs assessment model.* Exhibit 9 illustrates this relationship. For Example, in Stage 1 of the model, setting goals is the first problem area to be addressed. To develop a plan for setting goals, each step in systematic planning should be completed. The problem is justified and analyzed; data are collected; alternatives are generated, and one alternative is selected. For this alternative, a strategy for setting goals is developed to include tasks to be completed for setting goals, timelines for task completion, required resources, responsible groups or individuals, people to be involved, etc. The chosen strategy is implemented and evaluated, and decisions are made about whether or not the strategy is effective and should be revised or replaced. When this cycle is completed for goal setting, it is repeated in its entirety for the next phase—data collection—and for each subsequent stage in the needs assessment. Thus, when planning is complete, there will be strategies or plans of action for each stage.

It is important to note that as systematic planning is applied to each "problem area" in a needs assessment model, other more specific problems may emerge. These problems are also

Exhibit 9: Interaction of Planning Process and Needs Assessment Stages


IDENTIFY PROBLEM
ANALYZE PROBLEM
COLLECT DATA
IDENTIFY ALTERNATIVE SOLUTIONS
SELECT SOLUTION
DEVELOP STRATEGY TO IMPLEMENT SOLUTION
IMPLEMENT STRATEGY
COLLECT DATA ABOUT STRATEGY/ SOLUTION EFFECTIVENESS
GOAL FORMATION
DATA COLLECTIONS ON CURRENT CONDITIONS
NEEDS ANALYSIS
no
STRATEGY SATISFACTORY?
yes
no
SOLUTION SATISFACTORY?
yes
IDENTIFY NEW PROBLEM

subjected to the steps of systematic planning (if they are considered critical to the success of the needs assessment), and the strategies devised for their solution become a part of the overall plan.

The theory of systematic planning, when proper cautions are observed, is well-suited to the complex practice of educational planning. Its application in the context of needs assessment provides for a total conceptualization of the project, specific statement of goals and/or problems, and adequate information for decisioning. It also allows for the involvement of individuals affected by needs assessment and incorporates the consideration of time and resource constraints. Thus, systematic planning will meet many of the earlier identified criteria that are necessary for the success of educational improvement projects. In order to meet all of the criteria and to assure a comprehensive data base, planners must consider needs assessment in relation to the overall educational environment and to its potential for validation and improvement. These considerations provide a further context for systematic planning and more specific information for decision making.

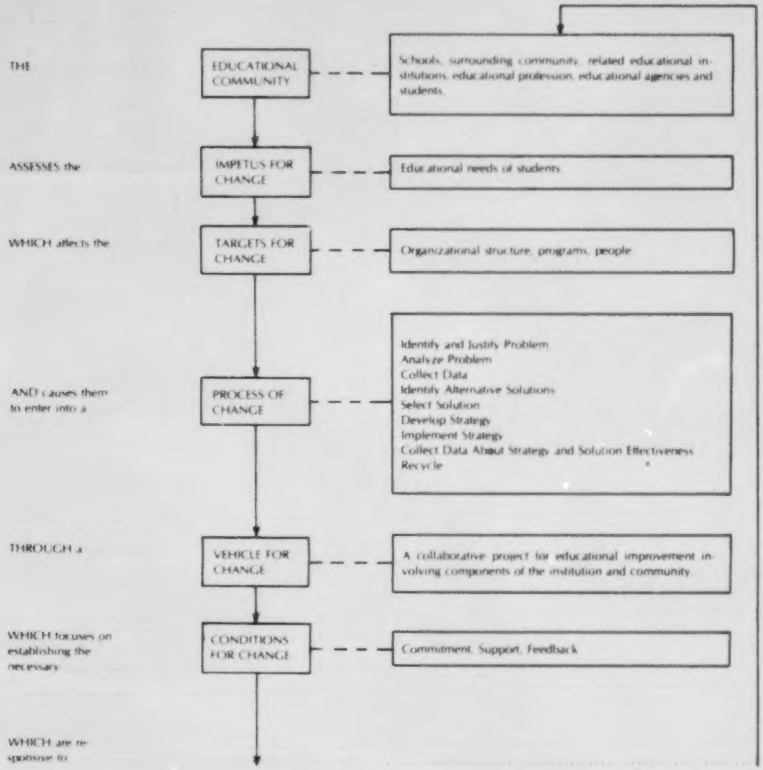
Systematic Planning and Educational Improvement

It is important to recognize that, while needs assessment *does not imply change* in educational institutions, it may be a prelude to change. That is, it is possible or even probable that needs will be identified and that decisions will be made to make changes in components of the educational institution to meet those needs. For this reason, planning for needs assessment requires a perspective that places it in the context of change in educational institutions.

When specific plans of action for needs assessment are developed, it is necessary to consider two important relationships: (1) how educational institutions interact with the social, political, and economic community to define the educational needs of students; and (2) how needs assessment results are used to redefine missions and functions in educational institutions. In discussing these relationships, it is helpful to think of systematic planning as an ongoing process which can link the educational institution with the broader community. An illustration of these relationships and the way systematic planning links the institution and community is provided in the Strategy for Facilitating Educational Change (Exhibit 10).

In the Strategy for Facilitating Educational Change, systematic planning and needs assessment are processes used by the institution and the educational community to determine the direction of change, the specific activities to be carried out in effecting change, and the criteria to be used in evaluating

Exhibit 10: A Strategy for Facilitating Educational Change


THE
EDUCATIONAL COMMUNITY
Schools, surrounding community, related educational institutions, educational profession, educational agencies and students
ASSESSES the
IMPETUS FOR CHANGE
Educational needs of students
WHICH affects the
TARGETS FOR CHANGE
Organizational structure, programs, people
AND causes them to enter into a
PROCESS OF CHANGE
Identify and Justify Problem
Analyze Problem
Collect Data
Identify Alternative Solutions
Select Solution
Develop Strategy
Implement Strategy
Collect Data About Strategy and Solution Effectiveness
Recycle
THROUGH a
VEHICLE FOR CHANGE
A collaborative project for educational improvement involving components of the institution and community.
WHICH focuses on establishing the necessary
CONDITIONS FOR CHANGE
Commitment, Support, Feedback
WHICH are responsive to

change. Both the educational institution and the community participate in systematic planning to identify needs and the changes required to meet needs. During needs assessment, discrepancies between *what is desired* and what *is* are sought. Discrepancies (needs) identified during needs assessment provide an *impetus for change* (either in the components of the institution, the educational community, or both). Based on these needs, the institution and the community develop plans of action for meeting identified needs. Development and implementation of these plans are considered the *vehicle* for change through which institutional components are modified to meet needs.

The change stategy defines the *educational community* as the students in the schools in a specific geographic region; their parents; the social, political, economic organizations served by the school(s); the institution(s) of higher education that provide training for preservice and inservice educational personnel; and local, state, and federal agencies that regulate and fund public education.

All of these components are viewed as interacting directly with the schools. All have a vested interest in the success or failure of schools in achieving their mission. All contribute something to the functions of the schools. For this reason it is desirable that they are involved when needs are assessed and when strategies for meeting needs are developed. Information about them—their specific and general characteristics, their expressed educational goals and concerns, their formal and informal interaction patterns—should be an important consideration in planning.

This strategy also assumes the critical components of the educational institution to be curricular programs designed to meet the educational needs of students, organizational structures established to facilitate program development and implementation, and people who interact with these components in the institutional setting. They are identified as the critical *targets for both needs assessment and for institutional change.* It is also assumed that these three components are functionally related so that actions or changes in one effect actions or changes in the others.

Any needs assessment or educational improvement problem subjected to systematic planning should be justified and analyzed in terms of these targets. Information about them should be collected and used when alternatives are identified and selected and when strategies are devised, implemented, and evaluated. At any point in the planning process, a problem may be identified in relation to the organization, the programs, or the people within the institution. If such is the case, the identified problem is fed into the planning process; and strategies are developed for its solution.

Another aspect of the institution that provides information for planning is the climate existing within the institution. In this strategy, the climate is referred to as the *conditions for change*. The assumption is made that the affective atmosphere within an educational setting can positively or negatively affect the success of the institution in carrying out its mission. The climate can also affect the outcomes of the needs assessment and the success of educational improvement projects.

Commitment, support, and feedback have been identified as factors critical for creating a climate conducive to the success of needs assessment and educational improvement plans. The degree to which involvement is rewarded and is perceived as desirable, involvement is non-threatening and supported with adequate resources, and information about involvement is disseminated affects the success of both planning and implementation. These components of the climate provide another source of problems and of information for consideration during systematic planning.

The strategy discussed in this section provides a perspective for needs assessment planning. The perspective is particularly helpful when educational institutions are trying to be responsive to external forces, such as mandates for integration, bilingual programs, or accommodative education. While needs assessment may not precipitate change, no project to change educational institutions should be contemplated without conducting a needs assessment. The strategy presented here assumes needs assessment to be a prerequisite for institutional change. As such, the manner in which the needs assessment is conducted can have great impact on the potential for success of educational improvement projects. During this needs assessment, individuals can become informed about the project and its mission. Having the opportunity to become involved in project tasks, they become committed to the project's goals. Collaborating institutions and groups can focus on project-related tasks instead of on their separate goals and agenda. Roles can be defined while interaction patterns and communications channels can be established. Systematic planning before the needs assessment begins is necessary to assure that these processes yield positive results and that the assessment provides a valid basis for total project planning.

The strategy also assumes that as institutions and the educational community participate in the processes of change based on identified needs, resulting changes will become "institutionalized"—the changes will become an ongoing part of the institutions' operations. Inherent in this assumption is the belief that the changes will be evident in the institution's programs, organizational structure, people, and affective climate.*

Viewing planning as an ongoing process through which institutions and communities interact to identify needs and develop strategies for meeting needs provides a context for analyzing problems and developing solutions. If the Director in the vignette had considered the community and potential institutional change when planning for needs assessment, many sources of specific information could have been identified. These sources of information—components of the educational community, components of the educational institution, and affective atmosphere—should be tapped when planning for needs assessment. They should also be considered when plans are being developed to meet identified needs.

Collaborative Planning

According to the strategy presented in the preceding section, perhaps the greatest mistake in the planning process made by the director in the vignette was the failure to involve those people and groups affected by the needs assessment. Kaufman (1972, p. 30) states:

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*This strategy was based on a conceptualization found in W. Robert Houston, *Strategies and Resources for Developing a Competency Based Teacher Education Program*, Albany: New York State Education Department, 1973, pp. 2–3. It was further defined in Sarah C. White, *Teacher Educator: Master or Misnomer*, 1975, pp. 8–10, and in the University of Houston/Houston Independent School District Eleventh Cycle Teacher Corps Proposal. For a more detailed discussion of instututional change see W. Robert Houston, Robert B. Howsam, James M. Cooper, and Wilford Weber, "Exploring Alternative Strategies for Institutional Change", Chapter 21 in W. R. Houston, *Exploring Competency Based Education*, Berkeley: McCutchan, 1974.

> So far as possible, in conducting a needs assessment, we should include all the partners in attempting to achieve educational success. These partners include, at least, the learners, the parents and community members, and the educators. An effort to determine needs that does not include all the partners in education runs the risk of presenting a seriously biased starting point for educational design.*

Equally critical is the matter of how and when these people are included (English and Kaufman, 1978, pp. 14–15.):

> If classical educational planning has suffered greatly from any particular weakness, it has been the lack of meaningful citizen and student input in the process of planning, particularly in the establishment of goals for the school system. Any question regarding the necessity for citizen and student involvement in establishing a needs assessment for the school system can be referred to the basic tenet that the schools belong to the people.

These statements emphasize the desirability of involving those affected by the needs assessment—and those who have a vested interest in the operations and outcomes of educational institutions—in planning for the needs assessment. Witkin (1975, p. 19) offers further support for this point of view:

> When you involve the community in the process, you are likely to find more acceptance for the resulting plans and policies than if educators alone assess the needs and make the decisions. Also, when dissident as well as supportive groups are given a voice and their participation is invited in a constructive fashion, there is a better chance of reaching consensus on the areas of greatest need and upon proposals to meet those needs.

Thus, a rationale is provided for including a range of groups, individuals, institutions, and agencies in planning for both needs assessment and educational improvement. Further, it is implied that the broader educational community should have a more meaningful involvement than a mere response to a needs assessment instrument. To derive the full

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*Roger A. Kaufman, *Educational System Planning*, © 1972, p. 30. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

benefit of community involvement in needs assessment planning, *planners should strive for comprehensive representation and for maximum involvement in all phases of planning and implementation.*

A major consideration in collaborative planning for needs assessment is *how members from the broader educational community will be identified and selected for involvement in the needs assessment.* The Houston Needs assessment System (Houston and Bain, 1972, p. II–37) developed a set of questions to be used in analyzing this problem. These questions can provide guidelines for planners:

1. How many significant groups exist in the area?
2. What is the maximum number of members who can effectively work together?
3. Will the members be selected or elected?
4. If selected, which individuals will comprise the selection body?
5. If elected, what process will be used to elect the members?
6. How many individuals from each referent group will be on the committee?
7. Will the committee members receive monetary rewards or other incentives for serving on the committee?

HNAS (Houston and Bain, 1972, p. II–17) initiates the selection process with a demographic analysis of the attendance area of the selected site school(s). A socio-economic profile is developed to determine the community characteristics—age, income, housing, occupation, level of education, and ethnicity. The Phi Delta Kappa program also uses a demographic analysis to initiate one of the recommended selection processes.

Following a demographic analysis, both Houston and Bain (1972) and Kiser *et al.* (1975) recommend the identification of existing organized groups as a preliminary step to selection. Some of the groups suggested by both systems are civic clubs (e.g., Kiwanis, Lions), school-related groups (PTA, PTO, athletic support organizations), neighborhood associations, political and/or ethnic clubs, university affiliated organizations, the Chamber of Commerce, local churches and auxiliary groups, labor union locals, professional and business groups, and governmental agencies with substantial clienteles.

In addition to these, it is important to remember the role groups *within* the educational institution. Teachers, principals, counselors, paraprofessionals, student groups, and clubs are among the within-school groups that will be affected by the needs assessment and that should be included in collaborative planning.

A second strategy is to determine individuals who are representative of identified organized groups. Some criteria that should be considered in determining individual representation from organized groups are:

1. The extent to which individuals reflect the values and views of the organization.
2. The extent to which the individual is able and willing to serve as a communication liaison between the group and the needs assessment.

Several existing needs assessment systems make the assumption that formal or informal group leaders can best meet these criteria. The Houston Needs Assessment System, for example, recommends selection of the formal leader because identification of informal leaders is costly and time consuming. Kiser *et al.* (1973, pp. 48–49), however, specify an extended process for identifying informal group leaders. In this system, a nominating panel from each organized group rank-orders the group's ten most influential members. The individual rank-orderings are compiled in a master list and again rank-ordered on the basis of frequency of nomination and on rank given in the individual orderings. This list is submitted to the school superintendent who selects five names from each organization. The five names are submitted to the board of education which makes a final selection of two members from each organization.

Also important to collaborative planning is the identification of members who do not belong to organized groups. According to Houston and Bain (1972, p. II–22), this is especially crucial since "unorganized elements are likely to be poorer, less well-housed, fed, clothed, and educated. (A needs assessment) involving only organized constituency groups will be biased against those who probably have the greatest educational need in the community."

One model suggests holding public meetings which are well advertised through various media (e.g., newspapers, radio, T.V., billboards, posters) and using public opinion polls to inform and to contact individuals not members of organized groups.

Kiser *et al.* (1972, p. 47) also includes a strategy for selecting community influentials who may not belong to organized groups. This strategy involves the identification of community or school-related issues, recording names of individuals who speak out on the issues at public meetings (and their position on the issue), recording the position which emerges as a resolution of the issue, and selecting as potential committee members individuals who took winning positions.

Other selection strategies identified in review of the needs assessment systems called for random sampling or stratified random sampling of the total community. Instructions for both procedures are described in Chapter 5 of this document.

Election and direct appointment are other strategies used. These two procedures are especially prevalent in selecting students and educational personnel to participate in the needs assessment. Some guidelines for selecting students (Georgia State Department of Education, 1974) specify that:

> Student representatives should be carefully chosen to reflect the characteristics of the student population. Therefore, principals should select students from all races, both sexes and with varying interests and levels of academic achievement. Special caution should be taken to avoid selecting only students whose record of participation is high. . . . The number of students on the committee is an arbitrary decision. Since they are the eventual recipients of the project effort, token representation is indefensible. We suggest that 20% of the committee seats be manned by students. This will allow enough representation for them to be useful when the committee divides into teams.

The selection strategies reviewed here are representative of those used in a number of needs assessments and should provide useful ideas for planners. Two major factors can affect strategy determination—validity and economy of time. Such strategies as formal-leader identification, appointment, election, or random sampling will provide comprehensive representation at the least cost and in the shortest period of time. Identification of informal leaders and stratified random sampling will be more costly and time consuming. These latter strategies may lead to more confidence that true leaders have been identified and that views are representative of the total community. The 'trade-offs' between validity and economy of time should be carefully weighed in each project when decisions are made about identification of individuals to participate in collaborative planning.

A second major consideration in collaborative planning is the achievement of true involvement once representatives of the broader educational community have been selected. A first factor affecting involvement is the type of interaction that occurs among members of the collaborating group. When individuals representing many divergent values, agenda, and frames of reference come together for a common purpose, it is important to establish some operating rules that help the group focus on the task at hand. Kuuskraa (1971) listed some guidelines for establishing such rules:

1. To work, the central school administration (or educational leaders) must be willing to share power and decision-making with the community.
2. Community groups must have maturity; that is, they must be willing to look to long range as well as short range goals.
3. Transitional funds and transitional organizations are more effective than more permanent establishments; adhocracy is the byword for the future.
4. If a community advisory committee is not in a position to make a decision, don't tell members they can and try to manipulate them.
5. While a community advisory committee should include vocal critics of the school district, professional agitators or organizations are best excluded.
6. Planning with the community requires explicit description of process steps.

The Houston Needs Assessment took another perspective on facilitating group interaction by identifying specific problems that may occur and recommending measures for coping with them. These problems and preventives are shown in Exhibit 11.

Another major factor affecting involvement derives from differences in the frames of reference brought to planning by educators and members of the community. These frames of reference are particularly different as they regard the assumptions made about the purposes and functions of education (English, 1977, p. 19):

> Educational Planners envision schools as means to ends and the needs assessment as a process for specifying and seeking consensus about those ends. . . . The public views the purpose of schooling as "right action" and the basis for determining whether they are good or not is what is going on in them, and not what they may be achieving with students.

English (1977, p. 20) further explains that educators are concerned about stating school purposes in terms of outcomes and view the effectiveness of schools in relation to the school's ability to help students achieve outcomes. However, community members are likely to be far more concerned about how the school operates on a day-to-day basis and how smoothly it functions. Integration without busing, lack of crime and vandalism, and little drug usage are examples of indices more likely to be used by the public in determining school effectiveness.

Such differences can seriously affect communication about the needs assessment and the involvement of the community in the planning process. They lead to problems in framing questions related to educational priorities and in communicating the purposes and outcomes of needs assessment. Failure to resolve these problems can result in the community "turning-off" to the needs assessment and not participating even when agreement has been reached that educational improvement is desirable.

English (1977, p. 21) believes the key to resolution of these problems is information. It is the responsibility of the educator to inform the public about the schools—their outcomes and

Exhibit 11: Potential Problems in Organizing the Steering Committee

Source: Houston and Bain, 1972, p. III–8

1. Problems arising out of the decision-making process used by the committee.

   Prevention: Discuss the problems of consensus, dissensus, parity; agree at the onset on a voting/decision-making procedure.

2. Problems occuring when members operate from a personal frame of reference rather than representing the general viewpoint of their constitutents.

   Prevention: Reiterate the responsibility and purpose of the steering committee which is to represent, listen to, work with, and speak for the total community.

3. Problems caused when individuals and/or groups attempt to use the steering committee as a vehicle for their political, social, or environmental concerns.

   Prevention: Emphasize that the sole focus of the needs assessment is child-centered for the purpose of improved school curricular programs and inservice teacher training. This is not to say that political concerns, social problems, and environmental concerns are unrelated to public education. It is to say that should such concerns become the center of attention, the objectives of the project will not be reached.

4. Problems occurring when the steering committee assumes decision-making powers it does not have.

   Prevention: Clarify the purposes and duties of the steering committee, which ultimately is to take the results of the needs assessment and make recommendations to the school's decision-makers. It can be assumed that the recommendations will be followed as long as the school's resources and any rules and regulations permit.

5. Problems arising from members' inability to attend the meetings and perform the duties needed to achieve the objectives of the needs assessment.

   Prevention: Determine what arrangements each member needs in order to be able to attend. Arrange for released time for teachers, job holders, etc. Provide child-care facilities for those who need them. Discuss and agree on a degree of expectation of attendance and effort on the part of each member, and establish procedures for any needed changes in membership which might arise from lack of attendance and performance of duties.

6. Problems caused by ineffective or inadequate communication.

   Prevention: Discuss and clarify how the project coordinator and committee members will communicate with each other and with the schools, community, administration, and project staff. Communiques should be prompt, accurate, and should reflect dissensus as well as consensus.

7. Problems arising when members are given too much or too little responsibility.

   Prevention: Unfortunately, there is not a guaranteed recipe to follow in allotting responsibilities and tasks to committee members. The project coordinator should be alert to conditions which suggest that members have more than they can adequately accomplish or that they seem to be without enough to do to keep them involved and interested.

operations. He recommends the development of survey instruments or interview techniques "which contribute to and promote the public's understanding of their schools and which help professionals use such information gathered in a meaningful way so as to enable the schools to become more accessible and accountable to the consumer and taxpayer."

The implication of this factor for collaborative planning in needs assessment is that the public must possess a great deal of information before becoming involved in the planning process. Use of the media has already been mentioned as a strategy to inform the community, and such use should be incorporated into the plans for every needs assessment.

Another strategy used by many needs assessment systems is a community meeting. Both the Houston Needs Assessment (Houston and Bain, 1972) and the Phi Delta Kappa program (Rose *et al.*) include detailed procedures for conducting community meetings to disseminate information about needs assessment. In each of these, a media presentation is used to describe basic purposes, concepts, and processes. Each also allows for discussion in which community members can express their views, voice their concerns, and ask questions for clarification.

The *concerns* of individuals confronted with institutional innovations constitute a third factor affecting involvement in collaborative planning. The Research and Development Center for Teacher Education, The University of Texas at Austin, conducted extensive research on the concerns of educational personnel faced with the implementation of institutional innovations. The implications of this research should be considered when involving both educational personnel and community members in needs assessment planning. The point here is *not* to argue for or against needs assessment as an educational innovation but to present relevant information about how individuals are personally affected when asked to participate actively in projects or processes which are new to them.

According to Hall, *et al.* (1973), who developed the Concerns-Based Adoption Model (for educational innovation), the concerns of individuals facing innovation can be classified into four categories—no concern, concerns about self, concerns about task, and concerns about impact. The concerns are *developmental*—that is, as individuals become progressively more committed to the innovation and more able to carry out tasks in relation to the innovation, their concerns will change from no concern to self-concerns, to task-concerns, and then to concerns about impact.

The concerns of individuals will color both their perceptions and actions in relation to the innovation. In other words, *the level of concern of an individual about a particular innovation provides the motives for behavior regarding that particular innovation.* In a situation involving innovation, some people will have no concerns about it; some will be concerned about what it personally means to them; some will be concerned about being able to perform the tasks related to the innovation; and some will be concerned about how the innovation will affect people or practice (Hall *et al.*, 1974).

What are the implications of this model for collaborative planning for needs assessment? In any group called together for this purpose, some have no concerns at all—they would just as soon not be there. If they come at all, it is probably for a reason totally unrelated to needs assessment. Some community members fall into this category and probably attend such a meeting because they are interested in the effect attendance has on their parental image, because they are business people seeking to maintain an image of interest in the schools, or because they are taxpayers seeking to protect their interests and prevent a tax increase.

Others attending the meeting may have self-concerns. At this level, individuals are concerned about needs assessment and the way their participation may personally affect them. They may be teachers who have been briefed about the needs assessment, who are there because their participation might favorably impress the principal, or who want to see how much work will be involved. Parents or community members operating from self-concerns might feel that their participation would positively or negatively affect their children in the schools, or they might be concerned about their ability to do what is asked of them.

At the task-concern level, individuals want to "get on with it." They want to know what must be done and how to go about it. Their concerns focus on the needs assessment itself and the tasks necessary to conduct it. They are likely to be impatient with individuals whose comments and discussion appear irrelevant to these tasks.

Other individuals are concerned about impact—the effects the tasks have upon the results of the needs assessment or the effects of needs assessment on the components of the institution and community. They may question tasks and procedures and want to explore alternatives for increasing such impact.

Two aspects of this model are critical to involvement and collaborative planning. First, at any phase of planning and needs assessment, different individuals operate at different concerns-levels. Second concerns-levels are not static, so any individual may move progressively from one concerns-level to another during the needs assessment project.

It is imperative to successful collaborative planning that needs assessment directors or managers recognize the different levels of individual concerns within the group and that they provide ways for concerns to move to higher levels.

The different levels of concerns are illustrated in the following hypothetical dialogue about community input:

Principal: "Let's develop interview protocols so we'll all be getting the same type of information."

Teacher: "That's a good idea, but what I want to know is who's going to conduct the survey and will it be done during school hours or after school?"

Businessman: "Wait—before we go into that, is there any chance of developing a brochure that lists local sponsors for the needs assessment like they do for Little League?"

Parent: "No. I don't think we ought to use school business for advertisement purposes!"

Student: "Does this mean you're going to change the courses we'll be taking next year? I'm supposed to take French and I need it to get into college."

Parent: "What will I have to do? I'm not sure my husband will want me to go around the neighborhood knocking on doors."

School Counselor: "Are house-to-house surveys the best way to get the kind of information we need? Maybe we should look into mail-out questionnaires or community meetings in neighborhood areas."

Labor Union Official: "I think this whole idea is a farce! Everyone knows that what's wrong with the schools is that we don't have enough good teachers and the ones we have are overworked and underpaid."

In addition to these speakers, approximately half the group made no comment and several of those members appeared bored. At this point, unless the level of concern underlying each of the comments is detected, the person conducting the meeting may feel bewildered or frustrated. If the meeting director had been aware of the concerns-levels and some strategies for dealing with them, it would have been realized that this is a perfectly normal situation and a meeting climate would have been provided which facilitated movement toward resolution of concerns.

While there is probably never a time when all committee members are operating at the same concerns-level, there are strategies that can be used to move individuals toward higher levels of concern and that allow individuals to contribute to the needs assessment regardless of their level of concern.

The strategy postulated by Fuller (1970) for moving individuals from one concerns-level to another involves *Arousal, Assessment, Awareness,* and *Action.* In the *Arousal* phase, individuals are caused to focus on the innovation in relation to themselves. In *Assessment,* the level of individual concern is identified and analyzed for its specific characteristics. In *Awareness,* the individual is given feedback about the concern or is made aware of the level of concern and its implications for the individual's behavior and perceptions. In the *Action* phase of the strategy, the individual is encouraged to perform some tasks related to the concerns. The successful performance of such tasks, with support and feedback about performance, helps resolve the concern and allows concerns at the next higher level to emerge. The strategy then is repeated, beginning with situations which facilitate the arousal of concerns at the next highest level if these concerns do not emerge spontaneously.

In applying this strategy to the group meeting described above, some guidelines may be described for its use.

Arousal of Concerns. The first step of the involvement strategy is to set up situations in which individual concerns about needs assessment may be aroused—individuals must perceive the needs assessment as *personally affecting them in some way*. Information about the needs assessment and its purposes may be helpful at this point but it is not sufficient. Concerns are aroused when individuals perform needs assessment tasks that are perceived as personal risks. For the administrator, principal, teacher, or student, this may simply mean they are selected and given responsibilities in participation. The risks involved in performing satisfactorily for an authority-figure may arouse concerns focused on needs assessment. However, these concerns are likely to remain at the lowest level (self-concern) without further intervention.

It is possible, but unlikely, that the same force would be operating for community members. The owner of a business selected for involvement may perceive no risk in participation. It may be necessary to arrange situations in which this person is required to explain the needs assessment to other business owners and solicit their involvement before any personal risk is involved.

Setting up such situations for each individual whose concerns do not relate to needs assessment can arouse personal concerns, but they can also have payoffs for the needs assessment itself. For example, the teacher who spoke up at the imaginary meeting was obviously concerned about the amount of work that might be involved for teachers in conducting house-to-house surveys (a willingly performed task regardless of the work involved if operating at a higher concerns-level). In order to arouse higher-level concerns, the teacher might be asked to work with a school administrator to develop a schedule for the survey. This would possibly be perceived as a personal risk and cause the arousal of concerns about tasks related to needs assessment.

Assessment of Concerns. Important to the success of the strategy is the opportunity for *assessment* of concerns; that is, to discover the level of concern and its specific nature. As is evident from the hypothetical meeting, it is fairly easy to detect the concerns of individuals if they openly express themselves, if the meeting director is knowledgeable about the concerns model, and if the director is an effective listener. An atmosphere in which individuals do not feel threatened is necessary for open expression so that they feel that what they say is accepted and given attention.

However, some people may not speak up even in such an atmosphere. For these, it is necessary to provide other means of expressing concerns. This may be done by arranging small-group meetings or one-to-one conversations in which individuals feel less inhibited and speak more freely. It may be necessary to approach the problem directly and ask these people to write their concerns about needs assessment or to express them in direct conversations with the director.

Both verbal and non-verbal behavior must be analyzed by the director and inferences drawn about the concerns level. Also, *no concern is unimportant, even though it may appear trivial or irrelevant to the needs assessment.*

Awareness of Concerns. Once concerns are identified, it is necessary to ascertain that individuals are really *aware* of their own concerns. (According to Fuller, it is highly possible that individuals may be totally unaware of the concern motivating their behavior in any given situation). The vehicle for awareness is *feedback*. Situations must be arranged so that information can be given to each individual about that individual's concern. This again might be accomplished through open discussion. In response to the teacher's comment, the meeting director might have said, "Mr. Blank, you have raised a critical point. You seem very concerned about the amount of work involved in conducting the survey and who may be doing this work. I'm sure that's a concern shared by many of us in the group." Feedback *must* be given in a diplomatic way and in a manner which does not cause the individual to become defensive or embarrassed about the concern. The key to feedback—whether given in a group or one-to-one discussion—is to approach it positively and with the idea that the concern is legitimate and constructive in regard to the needs assessment.

Action Related to Concerns. Once individuals have become aware of concerns, tasks related to concerns should be negotiated. Two considerations are mandatory in task negotiation: that the task be something the individual is willing to do and that the task contribute something constructive to the needs assessment. Success in task performance is also a key to the strategy. Therefore, a third consideration in identifying tasks is what the individual is able to do in terms of ability, resources, and time. Collecting and disseminating information are tasks that most individuals can perform to contribute to the needs assessment. Conducting meetings may be within the capabilities of some, but not others. The concern itself usually suggests the nature of the task. The negotiator must be flexible and creative enough to devise ways to relate the task constructively to the needs assessment.

It is also important that adequate support be provided for the individual in carrying out the task. Resources should be made available, suggestions for carrying out the task should be made, and a supportive person should be physically present if this would aid in task completion. Support must not be overdone, however, because it is critical to the success of the strategy that the risk and the success of task completion belong to the concerned individual.

Once self-concerns-related tasks have been successfully performed, it becomes possible to arouse concerns at a higher level. This means that if self-concerns have been resolved, task-concerns may now be aroused. When individuals are operating at this level, their concerns may center around either the actual tasks of needs assessment or their abilities to perform tasks. Here, training activities become relevant to them, and the needs assessment can really begin to move forward.

When viewed from this perspective, involvement is not easily accomplished. However, the model helps explain why true involvement is rarely achieved in such projects as needs assessment. If collaborative planning is to be real and if more than token involvement is desired, needs assessment managers must be willing to devote attention to the concerns of individuals and to strategies for moving individuals to higher concerns-levels.

Summary

Three perspectives for needs assessment planning have been presented. A *systematic planning process* applied to each phase of a needs assessment model can result in the development of schedules of events necessary for carrying out each phase. Schedules of events can be defensible, based on adequate information, and with inherent procedures for evaluation and revision.

Planning a needs assessment within the context of a strategy for *facilitating educational improvement* or change adds further perspectives for needs assessment planning. Focusing on the components of the educational community, the components of the institution, and the institutional climate as the targets of needs assessment and change helps identify sources of problems, information, and resources for both needs assessment and educational improvement.

Collaborative planning is viewed as important for the success of needs assessment and educational improvement. Identification and selection strategies designed to ensure comprehensive representation or organizations and individuals from the educational community are important components of needs assessment planning. Achieving maximum involvement of the educational community is highly dependent upon the extent to which educators share information with the community and upon the willingness of needs assessment managers to identify and resolve each individual's personal concerns.

These perspectives are important to planning, and attention to them can greatly facilitate planning and needs assessment.

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3

Planning for Needs Assessment Tasks and Organization

Several stages of planning are associated with organizing and carrying out an educational improvement project. In needs assessment, three distinct stages of planning are suggested. *First*, there is a planning period devoted to setting-up the project. This "pre-planning" for needs assessment is critical to getting off to a successful start.

A *second* stage of planning is devoted to organizing the needs assessment. Identifying the structural units and their interactions is important to the successful operation of the needs assessment and the effectiveness of communication internal and external to the project.

A *third* stage of planning focuses on developing the schedule of events required for actually conducting the needs assessment. At this point, a systematic planning process is applied to each phase of a selected needs assessment model in order to identify tasks, resources, areas of responsibility, and timelines. Here also, collaborative planning becomes a meaningful process for both comprehensive educational planning and needs assessment. These three planning stages are discussed in this chapter.

Application of systematic planning to the phases of a needs assessment model helps identify the tasks that must be completed to conduct the study and to use its results. While task identification and sequence are dependent upon the conditions existing in each needs assessment site, some major tasks are appropriate for each planning stage. The tasks were identified by examining the procedures recommended by a number of existing needs assessment models and are presented in their sequence of use. Explanation of these tasks will assist planners in setting up schedules of events for local needs assessments.

Pre-Planning for Needs Assessment

While collaborative planning for needs assessment is recommended, several tasks must be accomplished prior to initiating this process. These tasks are necessary to lay the groundwork for needs assessment and to involve community representatives in the planning process:

1. Obtaining a commitment from the school district, target institution and/or community.
2. Analyzing the resources available (including financial).
3. Identifying project director or management team.
4. Determining the scope and processes of the needs assessment.
5. Performing client/situation analysis.
6. Selecting and orienting project participants.

As each of these tasks is analyzed in relation to the conditions of a specific needs assessment site, other tasks and activities for performing them will be identified. Each of the tasks is discussed briefly to provide ideas for task analysis.

Obtaining Commitment for Needs Assessment

The strategies used for obtaining commitment to needs assessment are directly related to the *purposes* for needs assessment and to the precipitating conditions from which they arise. Three types of precipitating conditions may initiate a needs assessment. The first of these is dissatisfaction with the outcomes or operations of the schools resulting in pressure to rectify real or perceived problems. The pressure may originate internally or externally—either within the institution or from the broader community. Dissatisfaction may be indicated by such actions as student demonstrations, teacher strikes, or failures of bond issues.

The purposes of needs assessment, if *dissatisfactions* are the precipitator, may be to check perceptions (to see if there is indeed a problem), to determine if dissatisfaction is general or arising from some specific group in the community, or to determine the content and nature of dissatisfaction. If needs assessment is the result of dissatisfaction, obtaining commitment may be a matter of convincing school officials and community influentials of its merits as a data-collection/involvement tool.

A second condition that may precipitate needs assessment arises from mandated changes (such as accommodative education, integration, or installation of a bilingual program) or from projects funded to effect improvement in some aspect of an institutional component. In this case, the primary purpose of the needs assessment is to obtain input for the development of new programs and to ascertain that such programs are congruent with the educational values and goals of the community. Commitment may be more difficult to achieve. Members of the educational community must perceive the desirability of proposed changes; they may require information about the entire project as well as the needs assessment; and they may need to be convinced that the project will be worth the effort and will not cause problems for existing programs and operations.

A third condition that may precipitate a needs assessment arises from established evaluation procedures within the institutional framework. Ongoing evaluation procedures may call for a validity check in terms of the institution's goals and procedures. A needs assessment may be carried out to determine if, in fact, the institution is performing its mission as perceived by the community.

Commitment for needs assessment originating from these conditions is usually a matter of policy as far as the institution is concerned. However, there may be difficulty in obtaining community commitment—that depends on the extent of involvement desired, the ongoing relationship the institution has formed with the community, and community perceptions about the institution's success in performing its mission.

Obtaining commitment requires the analysis of the conditions precipitating needs assessment and the basing of strategies on the purposes for the study.

Analyzing Available Resources

Resource allocation is a direct result of commitment. The extent to which an institution or community is really committed to needs assessment will affect the resources available for its planning and completion. As used here, resources include personnel time, materials, planning time, support services, computer time, office space, supplies, and equipment. Institutions and communities truly committed to needs assessment will be willing to defray the cost of a needs assessment to the extent that it does not drain resources from other priorities. Of course, resources may be available from outside funding sources, but most such sources require evidence of commitment from the involved institution(s) and communities.

The actual cost of needs assessment depends upon many other variables. The scope of the needs assessment, the processes used, the required and available technical expertise, and the number of institutions involved are only a few of these. Before initiating the needs assessment, it is necessary to take a realistic look at the resources available in order to set priorities and make decisions. Schedules of events must include a cost/time breakdown in terms of available resources.

Identification of Needs Assessment Director or Management Team

Selection of a director or management team is critical to the success of the needs assessment. In most needs assessment systems that were reviewed, the management function was performed by one person. In others, management teams coordinated and directed the project. In some systems, needs assessment managers were members of the institutional administrative staff while in temporarily funded projects, such as Teacher Corps, the project director or project evaluator often served as the needs assessment manager.

Planners for the Houston Needs Assessment System (Houston and Bain, 1972, II–5,6) indicated that "there is no set, explicit requirement that (the director) hold any certain position in the system." The time constraints and the manager's inability to reach decision-makers are often important barriers to the success of the project. Non-institutional managers also face those problems, but it is theoretically possible that ideal managers could be dedicated, competent lay persons. The benefits which could be derived from such appointments are many. Because community involvement is a key factor in needs assessment success and because leadership from the community is so important, careful consideration should be given to the involvement of parents or other lay groups in project management.

The duties of needs assessment managers may include planning and organizing the needs assessment project (primarily in the Pre-Planning stage). Managers usually have responsibility for staffing the project in terms of the organizational plan, for determining job descriptions and criteria for selection and rewards, for orienting project participants, and for providing training as necessary. They provide leadership in the development of schedules of events and coordinate the activities for task completion. They insure that volunteer and professional workers are deployed efficiently, that data collection phases are properly conducted in accordance with good statistical practice, and that the results are articulated to promote dissemination and implementation.

Other management responsibilities might include the determination of interaction patterns, establishment of the communication system, and development of reporting formats and dissemination procedures. Project evaluation may or may not be a responsibility of the manager. In some systems reviewed, managers were responsible for developing an evaluation model and procedures. In others, this responsibility was assigned to evaluators or consultants.

Several needs assessment systems listed specific criteria or management skills to be used as guides for selecting directors. Identified as desirable characteristics were experience as an educational manager or change agent, problem-solving skills, the ability to organize and motivate groups of people, the ability to use outside resources to extend those of the institution, and skills related to systems analysis.

Managerial skills appear to be general across all types of needs assessments, although some skills may be more important for specific instances. For example, if needs assessment is precipitated by dissatisfaction, the most important consideration for management selection may be the level of skills to communicate with all groups within the educational community, to facilitate interaction and involvement, and to effect compromise and consensus. An analysis of the purposes for needs assessment should point out priority skills that may help in determining project management for specific sites.

Determining the Scope and Processes of the Needs Assessment

This major task also is associated with the purposes and precipitating conditions for needs assessment. Analysis of the precipitating conditions may identify the desirability of a *general* or a targeted needs assessment. A general needs assessment can be viewed as a focusing process used to check perceptions and to provide a sharper image of factors affecting the outcomes and operations of educational institutions. It is used to identify general goals, problems, or areas of concern. A major characteristic of a general needs assessment is its comprehensiveness—encompassing all facets of programs, organizations, and populations.

For example, a general needs assessment may be used when dissatisfaction—*the exact nature of which is unknown*—is the precipitating condition. The failure of a bond issue may be perceived as an indicator of community dissatisfaction. A general needs assessment may be used to determine if this is a true condition and, if so, what specific areas of the school's programs, organization, or people are the focus of that dissatisfaction. The process is valuable to both educators and community. As perceptions are checked, the areas of concern become more clearly defined; institutional aspects that are functioning well are highlighted; and a clearer image of the overall mission emerges for both educators and community members.

This type of needs assessment may also be used when needs assessment is precipitated as a part of the evaluation process to determine if stated goals and processes are congruent with the values of the general community and are directed toward the educational needs of the broader educational community.

Another type of needs assessment may be used once specific areas of concern are identified. This type is referred to here as a *targeted* needs assessment. A targeted needs assessment is focused on specific populations, program areas, or organizational structures to identify the specific characteristics which should be addressed in educational improvement. For example, Teacher Corps programs specify preservice and inservice teachers of economically disadvantaged children as a major target. While needs assessment may address general or specific educational goals or specific curricular programs, such as reading, information obtained through needs assessment is interpreted in relation to the identified targets (teachers).

A targeted needs assessment may be the result of a mandate to install bilingual programs. Data are collected from specific populations and interpreted in relation to their implications for bilingual program development and implementation. A targeted needs assessment may also be initiated by concern expressed about a specific program, school, or aspect of school operations. In this case, there may be no need to conduct a general needs assessment and resources are focused on the specific area of concern.

There are three basic decisions involved in determining the scope of the needs assessment:

1. What will be the level of impact; what schools and grades will be included?
2. Which goals should be included in the assessment—will goals related to total child development be included or only those focusing on cognitive areas?
3. How will the desired levels of performance be established for selected goals?

Analysis of the precipitating conditions for needs assessment should help answer these questions and provide guidelines for selecting the type of needs assessment appropriate for specific purposes.

Selection of the school sites for needs assessment is a major consideration in determining the scope. School identification is also associated with the purposes for the needs assessment. If needs assessment is precipitated by internal or external dissatisfaction or pressure, the site school(s) may be the focus of the dissatisfaction; thus, no further identification process is required. However, it may be a good idea to include other schools to ascertain that the same conditions do not exist there.

When needs assessments are the result of mandates or projects, selection is based on the representativeness of the school in terms of population and program characteristics. Most federally funded projects are required to select schools with a large percentage of economically disadvantaged students. Installation of bilingual programs in a particular school is based on the percentage of students for whom English is a second language. If such is the case, the first step in school selection is the identification of schools that meet a set of predetermined criteria. The second step in this selection process requires the development of site-specific criteria (based on the willingness of staff/community to participate and number of students or schools involved) to be used as the basis for final selection.

Random selection is a valuable selection technique. For general needs assessments, random selection is probably the most defensible strategy. Stratified random selection, based on population and program characteristics, may be used to facilitate analysis and interpretation of data.

Determining the *process* for needs assessment is a matter of selecting those phases of a needs assessment model appropriate for a specific site. Three major processes—Goal Formation, Data Collection on Current Conditions, and Needs Analysis—have been presented as generic stages of needs assessment with a systematic decisioning process common to each. In determining specific processes, planners should first determine the purposes of the needs assessment in relation to the precipitating conditions and the type of needs assessment (general or targeted) implied by conditions and then should select processes appropriate for that type.

Performing Client/Situation Analysis

While obtaining information related to clients and situations is a major step in needs assessment, some information must be available to planners before the needs assessment is conceptualized and conducted. Analysis of the conditions precipitating needs assessment has already been identified as important information for planning. Other important information in planning and organizing is derived from the characteristics of the components of the community and the institutions involved in needs assessment.

Information about the community may be obtained through conducting demographic analyses, opinion polls, concerns surveys, or neighborhood meetings. It is important to know which are the organized community groups, who are the influential leaders, what are the general characteristics of the people, how community jobs are provided, and how all of these components interact with the educational institution. Such information will help planners identify the critical components and processes of involvement.

The components of the educational institution—programs, people, and organizational structures—become the primary targets of the data collection phase of needs assessment. Aspects of these components are usually the focus for targeted needs assessments, so it is helpful for planners to have general information about them before planning is initiated. Even if needs assessment is being planned and conducted by individuals or groups long associated with a particular institution, analysis of the targets from a particular perspective is likely to yield very different information from that which is already available.

General information about the *organizational structure* which might be helpful in planning includes:

1. Organizational units of the institution and their role-group composition.

2. Formal and informal communications flow among units, between individuals within each unit, and between individuals who are members of different units.
3. Relationships between organizational units and institutions outside the school.
4. Specific functions carried out by each unit.
5. Resources and support services available for carrying out functions and how these are distributed.
6. Criteria and/or qualifications by which individuals are assigned to units.
7. Formal and informal processes for rewards and sanctions, including formal evaluation procedures and rules for behavior.

This type of information can help planners make decisions about activities to be carried out for task completion and about who should be involved in those activities.

Information about *programs* is helpful in determining the goals and processes to be included in needs assessment. Information useful in analyzing programs includes:

1. Existing goals and/or purposes for given curriculum or extracurricular areas.
2. Objectives or outcomes of instruction.
3. Instructional activities used to help students meet objectives.
4. Instructional strategies that are employed to help students meet objectives and the teaching competencies necessary to implement strategies.
5. Specific instructional materials (including media) that are used in meeting objectives.
6. Procedures and materials for evaluating and reporting student progress in relation to objectives and in providing student feedback about progress.
7. Amounts of time devoted to instruction in specific areas.
8. Extent to which content is related to the interests and experiences of students.
9. Basic assumptions about how students learn that underlie instructional activities and how congruent these assumptions are with related research.

While very detailed and specific information may be obtained during the needs assessment to help identify why educational needs are not being met, an overview of programs held prior to planning is helpful, as this information affects the identification of specific tasks and interaction channels.

Information about *people* is collected in relation to their interactions with programs, organizational structures, and identified priorities. During planning, it would be useful to have such information as:

1. The personal goals, priorities and interests of individuals.
2. The general level of competence of individuals in relation to their specific roles.
3. The formal and informal role-group leaders.
4. General characteristics of individuals that are admired and rewarded.
5. Extra-educational groups in which individuals hold memberships.
6. General importance placed by individuals upon their affiliation with the schools and their place in the school organization.

The information identified above for the components of the educational community and the institution is useful in helping planners make decisions relative to the needs assessment. Much of this information is generated when a systematic process is applied to needs assessment phases. The conditions precipitating needs assessment in specific sites determine how much of this information is needed for pre-planning and how much should be generated in the Planning for Needs Assessment phase.

Selecting and Orienting Project Participants

Several strategies for identifying and selecting representatives from the educational community were presented in Chapter 2. In using these strategies for selection, there are two important factors to keep in mind during pre-planning.

1. The scope of the needs assessment, thus the inclusiveness of representation (based on analysis of the conditions precipitating needs assessment).
2. The professional and technical knowledge and skills required for conducting the needs assessment.

In considering the extent of community/institutional representation, it is necessary to examine the purpose for which the needs assessment is being conducted and the type of assessment, general or targeted. If the needs assessment is general, comprehensive representation from the entire community and from all involved institutions is desirable. In a targeted needs assessment, representation may be more focused. A needs assessment which targets bilingual programs may draw most of its representation from community and school groups for which bilingualism is a real (as opposed to a philosophical) concern. If basic skills are targeted in the needs assessment, those with expertise in this area and those with a vested interest in programs focusing on these skills should be favored in the selection process. In needs assessments with specific schools as the target, selection strategies should focus on community representation within the school attendance zone. Analysis of the purposes, precipitating conditions, and needs assessment type will help planners determine selection strategies for specific projects.

Another factor in participant selection is the technical and professional expertise required for the needs assessment. Such tasks as instrument development, data collection, data processing, and development of instruction based on needs require knowledge and skills acquired through years of study. Expertise for performing these tasks often is available in educational institutions or through consultant services. Selection or identification of specialized individuals is usually related to the availability of funds for employing consultants or to the institution's willingness to release employees from regular assignments for participation in the needs assessment. It is important that tasks requiring professional or technical skills be identified early in pre-planning so that decisions can be made about who should perform these tasks.

The type of relationship individuals have with the project is another consideration related to participation in the needs assessment. Needs assessment participants may be staff, consultants, or volunteers. Some tasks are time consuming; e.g., instrument development, instructional development, and cost analysis. It is unrealistic to expect them to be carried out by volunteers. Those who perform such time-consuming tasks should be either project staff or consultants and paid salaries or fees for specific activities.

Time-consuming tasks must be identified quickly in preplanning and decisions quickly made about official relationships between project participants. One criterion that may be used in determining project participant relationships is the time a certain function will continue or what particular type of expertise is needed. For example, training of staff or orientation of project participants is an activity that may require a short time in relation to the total needs assessment process. This activity—developing and conducting training programs—may be carried out by a consultant or consulting group. On the other hand, management functions are required throughout the project; thus, those performing management tasks should be part- or full-time project staff and receive all or part of their salary for that purpose.

Technical and professional expertise is generally available in the broader educational community. Needs assessment planners should consider these resources when selecting representation. Information about the types of expertise available in the institution and community can be made available through the Client/Situation Analysis. Such information can facilitate decisions about selection of needs assessment participants.

Following selection of project participants, a major preplanning task is orienting them to the needs assessment and to its organization. The major purpose of orientation is to help individuals understand the purpose and processes of needs assessment and their relationship to it. It can be assumed that participants—community members, students, and professionals—will ask: "What is going to be done and why?" and "What will be expected of me?" The needs assessment orientation should give priority attention to answering them.

Depending on the level of involvement, orientation should proceed to address functions and tasks to be performed. It should include the background, theory, and practice of needs assessment. Participants will probably want to know what has been done in the past, how effective it has been, and what implications it has for their needs assessment. Information about the scope of the needs assessment, the decision-making process to be used, and various stages of needs assessment models can assist collaborative planners in making decisions about the processes to be used in a specific needs assessment.

Collaborative planners also require orientation about ongoing functions, such as the role of planners once schedules of events have been developed. Will planners be involved in monitoring task completion? Will they carry out other tasks, such as evaluation? Will they participate in goal identification, prioritization, and analysis? If so, how? These are clearly questions that participants will want answered as they become more knowledgeable about needs assessment. In developing the orientation, plans should include information about all aspects of the needs assessment and participant roles related to each.

Orientation strategies have been recommended in several needs assessment systems. The primary strategy used is to provide orientation for a selected committee or group which in turn provides orientation for participants involved in subsequent phases. In the Phi Delta Kappa program, initial orientation is provided by a consultant group. This then orients other participants. The Houston Needs Assessment orientation is provided initially by a local site coordinator (director) for members of a steering committee. Individual steering committee members then hold sessions for the role group each represents.

Regardless of the strategy used, orientation for any needs assessment could be carried out in several phases. As the needs assessment progresses, more people become involved at each phase. Any individual entering the needs assessment at any phase needs orientation about the needs assessment and its meaning for the individual.

Organizing the Needs Assessment

Planning for needs assessment is not complete without the development of an organizational plan which identifies the components and interactions of the needs assessment project. Organization plans may be developed in the Pre-Planning phase or in the Planning for Needs Assessment phase. While a rationale could be given that organizational decisions should be made by collaborative planners, some attention to organizational plans should be included in pre-planning. In this section, organizational models derived from existing needs assessment systems or educational improvement projects are presented to provide ideas for organizing the needs assessment.

Organization for needs assessment is concerned with the groups or roles to be established for needs assessments and their interactions with each other, with the targets for educational improvement, and with the institutions involved. In developing the organizational plan, there are two major tasks: (1) identifying the organizational units and (2) determining the interaction patterns that will best facilitate the goals of the needs assessment.

Identifying Organizational Units

A structural analysis of several needs assessment systems identified four basic organizational units. Though given different names in each model, organizational units can be categorized as:

1. *A policy unit*—this may be an existing group or a temporary unit depending upon whether the needs assessment is carried out by a permanent or temporary system.
2. *A managing/coordinating unit* which is usually a temporary unit established for the duration of the needs assessment. The functions of this unit may be carried out by one person (a manager or director) or by a group.
3. *A task unit* which is also usually a temporary unit set up to perform tasks specific to the needs assessment.
4. *An impact or involvement unit* drawn from existing institutions or groups who are affected in some way by the needs assessment. Usually this is a temporary unit.

A fifth unit (a *consultant unit* with in-depth knowledge of a particular model or expertise in needs assessment processes) appears in some of the needs assessment systems. The relationship of the consultant unit to the needs assessment is usually temporary, although in some cases it may extend for the duration of the project.

There is some variation and overlap in the responsibilities carried out by each group, but it is possible to identify some commonalities. The Policy Unit usually is responsible for establishing the operating rules, setting the scope or parameters for action, and specifying the purposes of the project. They make Go/NoGo decisions and may also be responsible for obtaining and allocating funds, resources, and staff to carry out project operations.

The *Managing/Coordinating Unit* is responsible for carrying out policy and implementing plans and decisions. This unit coordinates tasks and resources, monitors ongoing operations, facilitates communication, and disseminates information about the project.

The *Task Unit* has responsibility for specific, delegated tasks in relation to needs assessment, such as developing instruments, conducting training or orientation sessions, or administering instruments. Some task units exist only for the length of time required for task planning and completion.

The *Impact/Involvement Unit* is the most difficult to define, as it performs a variety of activities ranging from advising about policy to responding to instruments. The range of activities depends upon the philosophy of the specific system reviewed. For example, the involvement unit (the Steering Committee) in the Houston Needs Assessment System (Houston and Bain, 1972, p. II-33) serves as an advisory council, devises and implements plans, represents specific role groups, interprets needs assessment results, and makes recommendations to school decision-makers. This committee also serves a feedback and evaluation function for the project. In another system, this unit only makes recommendations about goal statements, represents role groups, and responds to needs assessment instruments.

Despite the range of functions for this unit, it serves a common function across all models reviewed—that of promoting validity and acceptance of the needs assessment by the groups and institutions represented through unit membership. *It is* *recommended that this group—or a management group with similar composition—be the center of collaborative planning.*

A specific example of the organizational units of a needs assessment system was derived from an analysis of the Phi Delta Kappa Model Program for Community and Professional Involvement (Rose *et al.*). The organizational units identified are:

1. The Area Task Force (Consultant Unit).
2. The Board of Trustees, Superintendent, or Educational Leader in a local school (Policy Unit).
3. The Representative Community Committee (Impact/Involvement Unit).
4. The District Task Force (Management/Coordination Unit).
5. The Teacher Cadre (Task Unit).
6. The Classification Team (Task Unit).
7. The Interim Selection Committee—*ad hoc* (Task Unit).
8. District Teachers (Task Unit).

These units are more or less typical of the units identified in all systems reviewed and should provide a guide for determining the structural units of most needs assessment projects. Some of the units—the Policy Unit, the Managing/Coordinating Unit, the Consultant Unit, and the Impact/Involvement Unit—should be established early in the needs assessment. Specific task units may not be established until planning is more complete and tasks for developing and conducting the needs assessment have been identified.

The second consideration in the development of an organizational plan is the determination of interaction patterns among the organizational units, between the units and the site institution, and between the units and the broader educational community. Each of these interactions is discussed in the following sections.

Interaction among Organizational Units

The typical interaction pattern among organizational units in most institutions is hierarchical. Information has a two-way flow; decisions are made at one level and carried out at another level; interaction among units is usually limited to adjacent units. This type of interaction is especially evident in the traditional organization of educational institutions. School boards set policy; superintendents act on policy—issuing directives to the administrative staff which then issues directives to teachers who implement directives in regard to students, programs, and organization.

Variations of this interaction pattern are visible to some degree in all of the needs assessment systems reviewed. In all of the systems, most organizational units interact with more than one other unit, and there is horizontal as well as vertical interaction. A basic interaction pattern common to the systems is depicted in Exhibit 12.

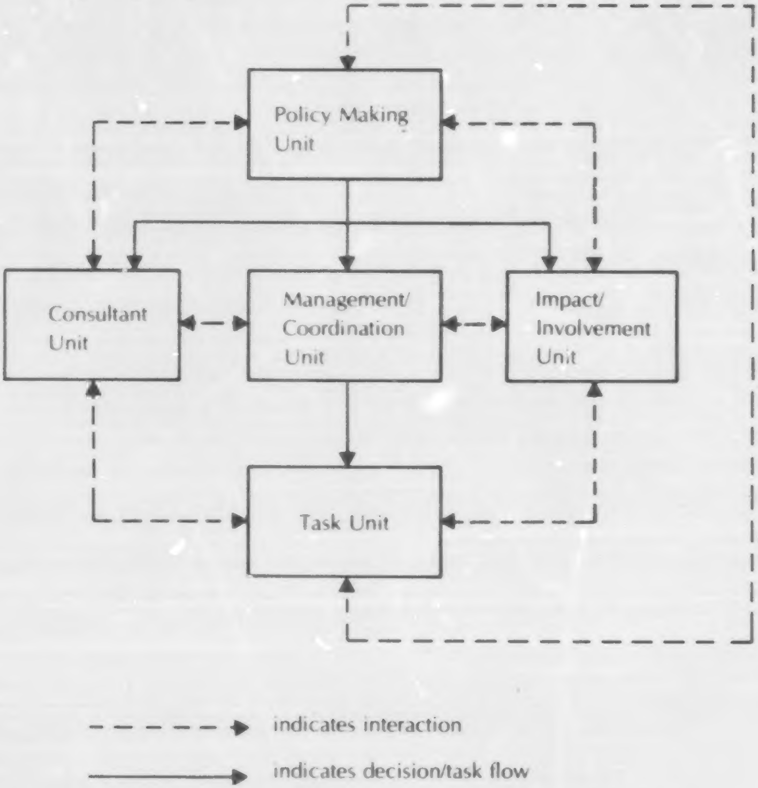
As illustrated, there is both horizontal as well as vertical interaction and direct interaction among all units. While decision-making flow is primarily hierarchical, decisions can be influenced by recommendations from all groups.

A specific illustration of the interactions among organizational units is provided by an analysis of the Phi Delta Kappa program (Rose *et al.*), as shown in Exhibit 13. Interaction patterns for this exhibit were determined by examining the step-by-step procedures provided in the "Administrator's Manual" for the program. The analysis reflects the direct interactions of organizational units as they carry out tasks or activities in relation to other units.

In the Phi Delta Kappa program (Rose *et al.*), policies and directives for action flow directly from the policy-making unit to the Area Task Force, the District Task Force, the Interim Selection Committee, the Representative Community Committee, and the Classification Team. The Policy Unit has direct interactions with several units and is influenced by these units through recommendations, training, and/or requests for action.

Another type of organizational plan was found in the University of Houston/Houston Independent School District Eleventh Cycle Teacher Corps proposal. The project was designed to develop, implement, evaluate, demonstrate, and disseminate a staff development program based on identified needs of the community, students, and teachers. It was a col-

Exhibit 12: Conceptual Interaction among Organizational Units

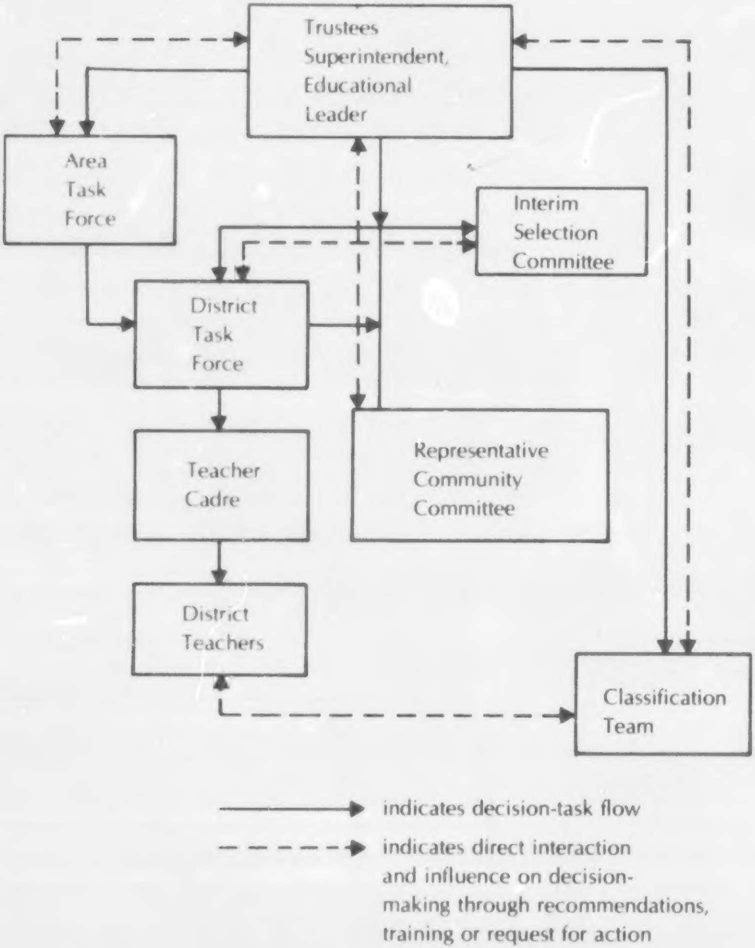

Policy Making Unit
Consultant Unit
Management/ Coordination Unit
Impact/ Involvement Unit
Task Unit
indicates interaction
indicates decision/task flow

laborative endeavor involving joint participation of the community, an institution of higher education, the local education agency, and the teaching profession.

The organizational units were derived through a functional analysis (related clusters of tasks that were to be carried out in the project) instead of through a structural analysis. These units were:

1. The Advisory Board
2. The Management Coordination Team

Exhibit 13: Actual Interaction among Organizational Units in PDK Model


Trustees
Superintendent,
Educational
Leader
Area
Task
Force
Interim
Selection
Committee
District
Task
Force
Teacher
Cadre
Representative
Community
Committee
District
Teachers
Classification
Team
indicates decision-task flow
indicates direct interaction and influence on decision-making through recommendations, training or request for action

3. The Program Development Team
4. The Dissemination Team
5. The Curriculum Implementation Team
6. The Staff Development Team
7. The Demonstration Team
8. The Evaluation Team

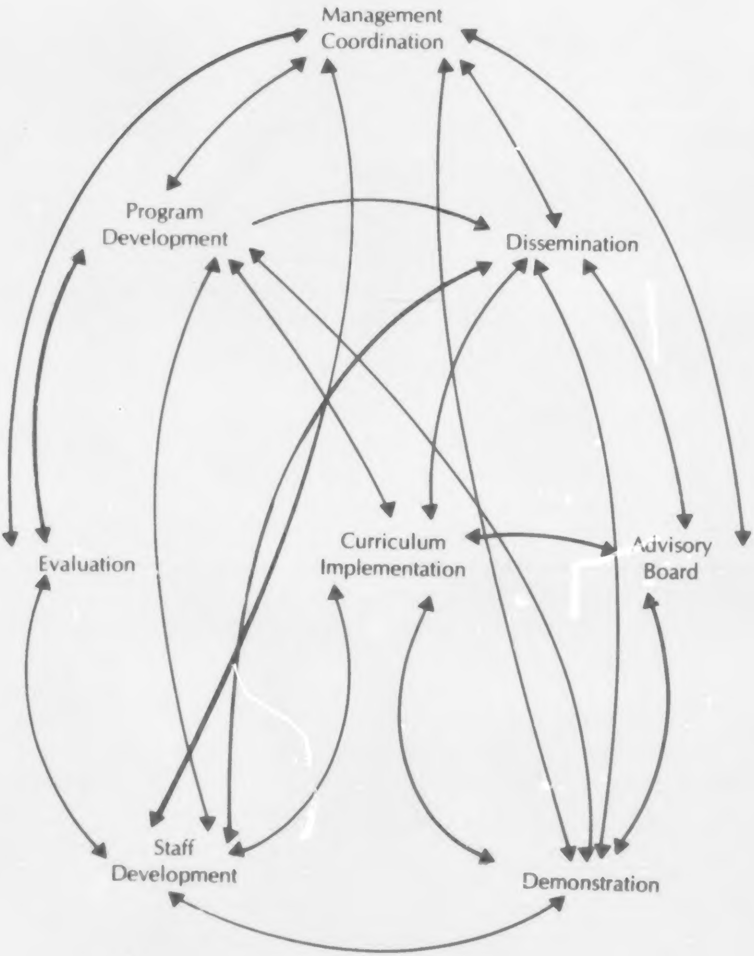
The organizational plan was devised to allow maximum interaction, participation in decision-making, and task completion by all functional units. An illustration of this plan is provided in Exhibit 14. In this plan, the development and implementation of instructional programs for students provide the central focus for all project activities and interactions. All units are represented on the Management Coordination Team, and each unit is responsible for developing its own plan to function. Plans and activities of individual units are coordinated through the Management Coordination Team and reviewed by the Advisory Board to ascertain that they are within project boundaries and do not violate existing policies of the colloborating institutions.

Advantages and disadvantages are associated with both types of organizational plans. In the more traditional type of organization, decisions can be made and implemented in less time. Planning proceeds in a smoother, more orderly fashion because fewer people are involved. These people usually have both skill in decision-making and the power to see that decisions are implemented. Resources and rewards are usually in the hands of the policy-making group and can be distributed in a priority relationship to the organization's mission.

Some of the disadvantages of this type of organization become apparent when the mission requires the participation of groups and individuals over which there is no direct control and when the mission requires the collaboration of independent institutions and groups. While planning and implementation may require less time, there is the danger that people outside the direct influence of the organization may refuse to participate. If they do, valuable time may be lost in orientation to specific tasks or in development of the required knowledge and skills. People who are involved in task completion but not

Exhibit 14: Project Organization
Derived through Functional Analysis

Teacher Corps Project


Management
Coordination
Program
Development
Dissemination
Evaluation
Curriculum
Implementation
Advisory
Board
Staff
Development
Demonstration

in decision-making may not be able to perceive the overall plan related to the mission and may fail to understand the importance of their task or its relationship to other tasks. Communications and many decisions may be made on incomplete information or hearsay.

Advantages of the second type of organizational plan are that it allows for all units to be involved in decision making, distribution of rewards and resources, and evaluation of their own actions. People responsible for specific tasks would have been involved in the identification of those tasks; they are involved in decisions concerning their own actions and understand the overall mission because they have been involved in its conceptualization. Implementation proceeds more smoothly because there is no need to orient people to the project or to try to sell them on the need to participate or carry out tasks. Units not only know what they are doing but are informed about the plans and actions of all other groups and decisions that affect the entire project.

A major disadvantage of this plan lies in the initial necessity to orient people about the project. It may also be necessary to spend time training people in decision-making and planning. Decision-making requires more time because more perspectives, information, and people are involved. It is necessary to consider conflicting priorities and to reconcile divergent points of view.

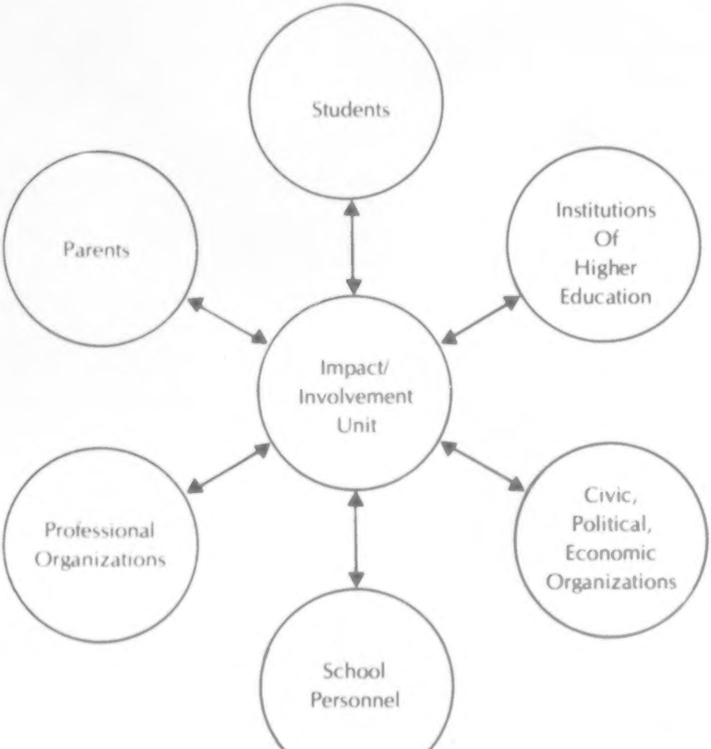
In comparing the two plans and assuming that the disadvantages of each are overcome, the first type of organization fosters efficiency in planning while the second facilitates collaboration and implementation of, commitment to, and acceptance of the mission.

Interaction between Organizational Units and Other Institutions

A needs assessment project can be organized in several ways to allow for interaction within the broader educational community. Business and industry—and some educational institutions—have established organizational units (Public Information Departments) to serve this function. Most educational institutions also have some type of parent/teacher organization to provide a vehicle for school/community interaction. One way to organize for wider involvement is the establishment of a separate unit whose function is to interact with groups, individuals, institutions and agencies in the community.

A modified version of this strategy was used by all needs assessments reviewed through the establishment of the Impact/Involvement Unit. Exhibit 15 is a schematic illustrating the interaction patterns possible through this type of strategy.

Exhibit 15: Interactions
with Involvement Unit


Students
Parents
Institutions Of Higher Education
Impact/ Involvement Unit
Professional Organizations
Civic, Political, Economic Organizations
School Personnel

The validity of three assumptions upon which this strategy is based is critical to needs assessment/community interaction. These assumptions are that selected members are truly representative of the views, opinions, and values held by the group they represent; that role group representatives would interact with the group represented, thus ensuring two-way interaction; and that the internal interaction patterns would allow input from the representative member to be disseminated to all units of the needs assessment organization. Unless steps are taken to assure that these assumptions are met, needs assessment/community interaction may be token.

The latter assumption has been met in a number of needs assessments and educational improvement projects by assigning representative members of the educational community to a number of organizational units other than the Impact/Involvement Unit. In the Phi Delta Kappa program, there is both an Impact/Involvement Unit and dissemination of community representatives among other units. The Houston Teacher Corps project calls for more widespread involvement of the groups in carrying out the functions of the project. The distribution of members of the various groups among functional units is shown in Exhibit 16. In this plan, members of the broader educational community, along with higher education and staff personnel, participated in planning for and carrying out tasks related to every project function. Teachers were members of five of the units; representatives of professional education organizations participated in six of the eight functions; school district personnel were members of seven units; and interns (students) were represented in six units. Members of every role group participated in policy decisions through membership on the advisory board.

Since the interaction of the organizational units with groups in the broader educational community can take several patterns, it is important to identify them as early as possible. While this is a decision to be made by planners for each individual project, the distribution among the units of membership from all groups in the educational community has many advantages. Among the advantages are that it assures the in-

Exhibit 16: Management Assignments by Collaborating Group

Source: University of Houston/Houston Independent School District, 1977

	Alternative School Personnel	Basic School Personnel	Community Personnel	Project Staff	Interns (Students)	Houston Independent School Dist Personnel	University of Houston Personnel	Professional Representatives
Curriculum Implementation Unit	x	x	x	x	x	x	x	x
Staff Development Unit	x	x	x	x		x	x	x
Program Development Unit			x	x	x		x	x
Demonstration Unit	x	x	x	x	x	x	x	x
Dissemination Unit			x	x	x	x	x	x
Evaluation Unit			x	x		x	x	
Management Coordination Unit	x	x	x	x	x	x	x	
Advisory Board	x	x	x	x	x	x	x	x

volvement of all groups in the tasks required to carry out needs assessment, thus promoting commitment to the process and the results; it stimulates interaction among the groups and facilitates communication and the flow of information among all groups; and it allows input from all groups, thus increasing the face validity of the needs assessment and its results.

Interaction of Organizational Units with the Targets of Educational Change

As discussed in Chapter 1, needs assessment interacts with targets of change at certain stages in the process. Exhibit 17

Exhibit 17: Interaction of Needs Assessment Stages with Targets of Change

STAGES	TARGETS		
	People	Program	Organization
Goal Formation	×		
Data Collection on Current Conditions	×	×	×
Needs Analysis			

identifies these interactions. As Exhibit 17 illustrates, interaction occurs between the needs assessment process and the targets during every stage of needs assessment. Specifically, *organizational units* of the needs assessment are involved in each of these interactions. These units carry out specific tasks in planning and conducting the needs assessment. A schedule of events for task completion is developed, and responsibility for events is assigned to a specific organizational unit. For example, in the needs assessment stage, *Data Collection on Current Conditions*, one of the specific tasks which may be identified is that of obtaining achievement-level data on students. In obtaining these data, the following activities or events may be scheduled:

1. Obtain approval to collect achievement data.
2. Identify school procedures for testing students.
3. Identify curriculum areas in which to collect data; analyze curriculum areas to determine specific objectives or instructional outcomes.
4. Identify appropriate standardized instruments for curriculum objectives.
5. Identify school staff to conduct testing.
6. Identify student sample.
7. Develop testing schedule.
8. Monitor and facilitate achievement testing.

As these tasks are carried out by prescribed organizational units, the units would interact with specific targets of change in the site school(s). A possible unit-target interaction is shown in Exhibit 18.

Exhibit 18: Organizational Unit/Target Interaction for Hypothetical Testing Schedule

EVENTS	ORGANIZATIONAL UNIT	TARGET(S)
1. Obtain approval to collect data.	Management/Coordination Unit	People (Principal)
2. Identify procedures for testing students and for organizing, storing, retrieving, and reporting data.	Evaluation Unit	Organization
3. Identify curriculum areas in which to collect data; analyze curriculum areas.	Program Development Unit	Program
4. Identify appropriate standardized instruments.	Evaluation Unit	Program
5. Identify school staff to conduct testing.	Management/Coordination Unit	People, Organization
6. Identify student sample.	Evaluation Unit	People, Organization
7. Develop testing Schedule.	Management/Coordination Unit	People, Organization
8. Monitor and facilitate achievement testing.	Evaluation Unit	People

As Exhibit 18 illustrates, many tasks for conducting a needs assessment are potential interaction links between organizational units and targets in the educational institution. In systematic planning, it is helpful to identify the specific target for a given task. If done, collection of information can focus on that target; and the danger of information overload (in relation to other targets) can be avoided.

Planning For Needs Assessment

Pre-planning and organizing for needs assessment with the considerations and suggestions offered herein should help get needs assessment planning off to a successful start. During the third planning stage—planning for needs assessment—educators and members of the educational community plan together. They identify tasks and develop schedules of events for conducting the needs assessment. Some of the tasks that have been identified for this stage include:

1. Develop procedures for identifying goals (e.g., select, compile, analyze lists of goals; write goals).
2. Develop format for prioritizing goals.
3. Identify sampling procedures for prioritizing goals.
4. Select population sample(s) for prioritizing goals.
5. Develop schedule of events for prioritizing goals.
6. Conduct goal prioritization activities.
7. Determine procedures for analyzing goal priorities.
8. Determine procedures or format for displaying goal priorities.
9. Analyze and display goal priorities.
10. Determine procedures for communicating goal priorities to appropriate groups.
11. Communicate goal priorities.
12. Design and plan data collection procedures.
13. Identify data sources.
14. Identify population samples.
15. Select and/or develop instruments.
16. Develop testing schedule.
17. Collect data.
18. Analyze data.
19. Determine reporting format for needs identification.
20. Compile data report (display data on goals and current conditions).
21. Determine procedure for prioritizing needs.
22. Identify populations to participate in prioritization.
23. Prioritize needs.

The following tasks suggest activities undertaken after the needs assessment is completed. As such, they are integral to the planning of change strategies.

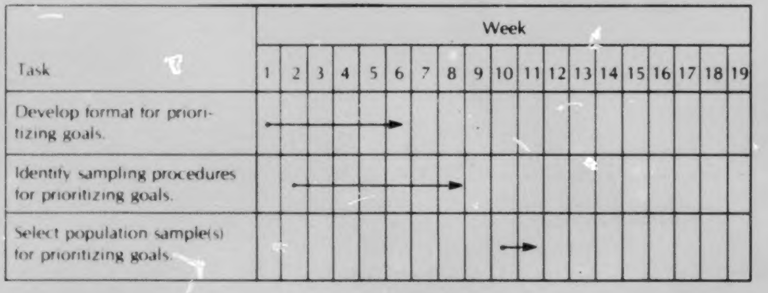
1. Specify program objectives, based on student outcomes.
2. Determine implications of objectives for changes in institutional components.
3. Develop strategies for meeting objectives and effecting desirable changes.
4. Determine cost factors of strategy implementation.
5. Implement strategies.
6. Identify indicators of successful implementation and procedures for evaluating effectiveness.
7. Evaluate program.
8. Revise program as needed.

These sample tasks are appropriate for the needs assessment model described in this document. Task identification depends upon the needs assessment model selected for specific sites. Ideas and suggestions for making decisions about the tasks are included in several chapters of this document. Regardless of the model selected for a specific site, these ideas and suggestions should prove helpful in developing schedules of events for needs assessment.

Schedules of Events for Needs Assessment

After tasks are identified, specific task assignments are made. Resources are allocated for task completion. GANTT charts are helpful organizers in both developing and displaying schedules of events. GANTT charts are developed by listing vertically tasks to be completed on a page and blocks of time horizontally. For each task, a dot is placed in the block that approximates the starting date, and another dot is placed in the box representing the completion date. An arrow is then drawn from the starting date to the completion date as illustrated in Exhibit 19.

Exhibit 19: Illustrative GANTT Chart



GANTT charts illustrate the time relationships among tasks. They may also be developed to include task assignments to organizational units, resources needed, and the target for each task. An illustrative chart using the needs assessment tasks identified for the stages of planning is provided in Exhibit 20.

This chart contains tasks, projected timeline, resources, responsibility assignments, and potential targets for a needs assessment. By breaking down the tasks into more specific activities and events, more detailed schedules of events can be developed for local needs assessments. Such a chart constitutes a management design for needs assessment, a product of planning, and a vehicle for monitoring and communicating activities related to it.

Summary

Needs assessment planning takes place in three stages—pre-planning, organization, and planning for conducting the needs assessment. Pre-planning tasks and decisions about them are made in terms of the conditions which precipitate needs assessment and the type of needs assessment—general or targeted—which is to be conducted. Organization of the needs assessment requires identifying the structural units and interaction patterns which characterize the needs assessment. Needs assessors should develop structural units and interaction patterns which best facilitate communication (a) among units, (b) between units and the broader community, and (c) between units and the targets of the needs assessment.

Collaborative, systematic planning is the recommended process for identifying tasks and developing schedules of events for conducting the needs assessment. General tasks are recommended and displayed in an illustrative schedule of events using GANTT charting as a management tool. More detailed schedules of events can be developed and displayed using the management design provided, and specific activities and events for conducting local needs assessments can be identified.

References

Houston, W. R., and Bain, R. *The Houston Needs Assessment System.* Houston: University of Houston, 1972.

Rose, B. K., Balasek, J., Kelleher, J., and Nelken, I. *Educational Goals and Objectives.* Bloomington, Ind.: Phi Delta Kappa, 1974.

University of Houston/Houston Independent School District. *Eleventh Cycle Teacher Corps Proposal.* Houston: University of Houston/Houston Independent School District, 1975.

Exhibit 20: Activities Keyed to GANTT Chart

Task	Week														Unit Responsible	Resources Needed	Target
	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
Obtain commitment from institution	—	—	→												Project/Institution Administration	Presentation	Institution Community people and organization
Analyze resources available			→												Project/Inst. Adm.	Cost Analyst Clerical staff	Community institution programs, people, organization
Identify project director or management			→												Project/Inst Administra	Interview Panel Clerical	Community/Institution People
Determine scope and processes of needs assessment				—	—	—	→								Project/Inst Admin		Community/Institution programs, people & org.
Perform Client Situation Analysis				—	→										Needs Assessment mgmt	Data Collectors Survey Ins.	Community, institution programs, people, organization
Select project staff				—	—	—	—	→							NA Mgt	Interview panels Clerical	Community/Institution People
Orient Project Staff				—	—	—	—	→							NA Mgt	Media pres.	Community/Institution People
Determine project organization (structural units & interaction patterns)				—	→										NA Mgt		Project, Community, Institution
Determine collaborative planning group			—	—	—	→									NA Mgt. & Policy Unit		Community/Institution People
Develop procedures for identifying goals						→									Mgt. Unit (planning group)	Clerical	Community/Inst. Program
Develop format for prioritizing goals							→								Task Unit	Clerical	Community/Inst. Program
Identify sampling procedures for prioritizing goals						—	→								Task Unit	Clerical	Community/Inst. Program, People
Select population sample(s) for prioritizing goals							—	→							Task Unit	Clerical, Computer	Community, Inst. Program, People
Develop schedule of events for prioritizing goals								—	→						Mgt. Unit (Planning group)	Clerical	Community/Inst. Program, people
Conduct goal prioritization activities									→						Task Unit	Clerical, instruments	Community/Inst. Program People
Determine procedures for analyzing goal priorities								—	→						Task Unit Mgt. Unit	Clerical	Community, Inst. Org.

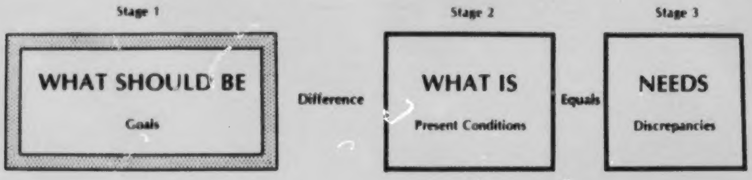
Task	Week															Unit Responsible	Resources Needed	Target
	1	2	3	4	5	6	7	8	9	10	11	12	13	14				
Determine procedures or format for displaying goal priorities								—	→							Mgt. Unit Task Unit	Clerical	Community Inst. People
Analyze and display goal priorities										→						Task Unit	Clerical Computer	Community, Inst. Org., people
Determine procedures for communicating goal priorities to groups								—	→							Mgt. Unit	Clerical	Community, Inst., People, Org.
Communicate goal priorities										—	→					Mgt., Task Unit	Clerical Media	Community/Inst. Program, People
Design and plan data collection procedures										—	→					Mgt. Unit Task unit	Clerical	inst. programs, people, org.
Identify data sources											→					Mgt. Unit Task unit	Clerical	Inst. Programs, people, org.
Identify population samples											→					Task unit	Clerical, Computer	Inst. Org.
Select and/or develop instruments											→					Mgt. Unit Task Unit	Consultant, Computer, Clerical	Inst. Org., People, programs
Develop testing schedule											→					Mgt. Unit	Clerical	Inst. Org.
Collect Data												—	→			Task Unit	Data collectors, Testers, Instruments	Inst. Org., people, programs
Analyze data													—	→		Task Unit	Clerical, Computer	Inst. Org.
Determine format for needs identification												—	—	→		Mgt. Unit	Clerical	Community/Inst. People, Org.
Compile data report														—	→	Task Unit	Clerical	Community/Inst. People, Org.
Determine procedure for prioritizing needs														→		Mgt. Unit	Clerical	Community/Inst. People
Identify participating populations														→		Mgt. Unit	Clerical, Computer	Community/Inst. People
Prioritize needs															→	Mgt. Unit Task Unit	Clerical, Instruments	Community/Inst. People

4

Formulating Educational Goals

The function of a needs assessment is to determine and document the discrepancy between a desired outcome, "What should be," and the present condition, or "What is." Exhibit 21 illustrates the Needs Assessment Algorithm. This chapter which focuses on the first of these three stages, Goal Formation, is organized into three basic parts: Identifying Goals, Prioritizing Goals, and Analyzing Priorities.

Exhibit 21: Needs Assessment Algorithm



Identifying Goals

Needs assessments tend to mirror one of two approaches: (1) a general approach involving the total education system or (2) a targeted approach involving one aspect of the program. In the first approach, the goals to be identified reflect the total educational program of the school or college. They are as comprehensive and as complete as possible. Statements of such goals tend to be broad and general, reflecting a conception of the liberally educated person. Should the needs assessment be based on such goals, a first task is to specify an agreed-upon list. Initial statements are available from a variety of sources:

1. Most state education departments have developed a list of goals for education that are available upon request.
2. Most public school districts have published a list of goals.
3. Colleges of Education have defined goals for their undergraduate and graduate programs.
4. While dated, statements from reports such as the Educational Policies Commission of the National Education Association (1938) or the Mid-Century Committee on Outcomes in Elementary Education (Kearney, 1953) provide basic ideas for formulating goals.
5. Goals may be drawn from needs assessment systems, such as those developed at the Center for the Study of Evaluation or Phi Delta Kappa.

Several of these lists are illustrated later in this chapter. The second type of goals is more limited in scope, usually dealing with a particular content area, problem, or set of areas and problems. These goals may be derived from sources such as these:

1. Teacher Corps proposals.
2. Discussions among parents, teachers, and students concerning a problem or a need for school improvement.
3. Lists of content goals published by professional associations (e.g., National Council of Teachers of Mathematics), textbook lists, or analysis of achievement tests.
4. Goals logically derived from a proposed purpose (e.g. improving interpersonal relations or sensitivity toward energy use).
5. Goals derived from job or task analyses.
6. Goals resulting from analysis of research findings.

Comprehensive Sets of Goals

Broad-based goals have been generated for students in schools and for professionals in teacher preparation programs. In each case the client, whether child or adult, is a learner. Goals and the processes used to devise them for each client group are discussed in this section.

In both schools and colleges, political forces affect the wording and the composition of goal statements. Community and personal values are reflected in the political climate of the community which tends to shape the assessment process.

Special interest groups, the Board of Education or Regents, recent local events, and external political factors influence the needs assessment (English, 1977).

School-Related Goals. Many processes have been used in determining goals for children and youth. These will be considered in this section. The Center for the Study of Evaluation (Hoepfner *et al.*, 1972, pp. 87–96) listed 104 subgoals for its set of forty-one major goals, which tended to be related to content areas (e.g., reading, mathematics, physical education). Subgoals for three major goals are shown below. Using the CSE numbers, they reflect affective (#20), performance (#21), and cognitive (#22) aspects of music:

20A Music Appreciation
20B Music Interest and Enjoyment

21A Singing
21B Musical Instrument Playing
21C Dance (Rhythmic Response)

22A Aural Identification of Music
22B Music Knowledge

The Phi Delta Kappa needs assessment system (Rose *et al.*, 1974) posed its goals as *processes related to student outcomes* rather than in terms of subject areas as CSE had done. Among the eighteen goals in the system are those shown in Exhibit 22.

Bucks County Public School developed the *Quality Education Program Study* (1971), which became the basis for several needs assessments in Pennsylvania and other states. Ten major goals were included in the needs assessment system:

1. Self-Understanding
2. Understanding Others
3. Basic Skills
4. Interest in School and Learning
5. Good Citizenship
6. Good Health Habits
7. Creativity
8. Vocational Development
9. Understanding Human Accomplishments
10. Preparation for a World of Change

Exhibit 22: Illustrative Goals
from Phi Delta Kappa Needs Assessment
Source: Phi Delta Kappa, 1978

1. Learn how to be a good citizen
2. Learn how to respect and get along with people who think, dress, and act differently.
3. Learn about and try to understand the changes that take place in the world.
4. Develop skills in reading, writing, speaking, and listening.
5. Learn how to use leisure time.

(Each of these goals was described more fully using 2-4 subgoals. The first goal, "Learn How to Be a Good Citizen," included four subgoals:)

A. Develop an awareness of good civic rights and responsibilities.
B. Develop attitudes for productive citizenship in a democracy.
C. Develop an attitude of respect for personal and private property.
D. Develop an understanding of the obligations and responsibilities of citizenship.

Each goal was described more fully under "areas"; then "subgoals" were listed within each area. Goal IX (Bucks County, 1975, p. 5), "Understanding Human Accomplishments," was called an important part of a student's education, since "Quality education should help all children to understand and appreciate as much as they can of human achievement in the natural sciences, the social sciences, and the arts." Five areas further defining what this goal entailed are included in Exhibit 23. This approach illustrates how broad areas can be broken into more sharply defined goals and subgoals, with descriptions at each level. These goals and subgoals are reacted to by members of the educational community in terms of an ideal school program. Chapter 6 includes a description of how data on current conditions are collected and compared with these data on ideal conditions.

In Temple City, California (Rand and Stover, 1971), the goals were organized around six areas:

Area I — Citizenship Preparation
Area II — Occupational Preparation
Area III — Basic Knowledge
Area IV — Current Issues
Area V — Self Understanding
Area IV — Extracurricular Activities

Exhibit 23: QEPS Subgoals for Goal IX

Source: Bucks County Public Schools, 1971, p. 5

Areas 1, 2—SHOWS APPRECIATION FOR ACHIEVEMENTS OF OTHERS.

Shows appreciation for the great artists, writers, and musicians and the hard work needed to excel; attends concerts, art shows, museums; selects good books, music and motion pictures.

Area 3—HAS KNOWLEDGE IN AREA OF HUMAN ACHIEVEMENT.

Shows knowledge by repeating lines of a book, poem or story; teaches or offers to teach a class; knows history facts; explains differences between teenagers and adults.

Area 4—SHOWS INTEREST IN LEARNING ABOUT HUMAN ACHIEVEMENTS.

Collects information on accomplishments of a person, race, or group of people; studies on own about persons or events; ask questions; goes to library to learn about achievements of people.

Area 5—TRIES OR ACHIEVES IN A FORM OF HUMAN ENDEAVOR.

Takes music, art or dance lessons; writes new words to a song; performs in a musical, art or athletic group.

Five aspects of the curriculum were shown in Area II, Occupational Preparation:

1. Opportunities for vocational training for direct employment.
2. Appropriate coursework to meet public and private university entrance requirements.
3. A broad choice of electives.
4. Career counseling.
5. Academic counseling.

The results of prioritizing efforts by parents, students, or teachers provided school administrators with data on what programs and services to offer.

Sarasota County, Florida, schools (1973) drew thirty-nine goals from a number of sources, including the state education agency, Educational Testing Service, and the Mid-Century Committee on Outcomes in Elementary Education. Stated in general terms, these goals did not rely on subgoals for further definition. The first six goals are listed in Exhibit 24.

Exhibit 24: Partial List of Sarasota Goals
Source: School Board of Sarasota County, 1973

EACH STUDENT WILL

1. Develop for the regulation of one's personal and civic life, a code of behavior based on ethical principles consistent with democratic ideals.
2. Participate actively as an informed and responsible citizen in solving the economic, social,and political problems of one's community, state, and nation.
3. Recognize the interdependence of different peoples of the world and one's personal responsibility for fostering international understanding and peace.
4. Understand the ideas of others and express one's own effectively.
5. Maintain and improve his own health and cooperate actively and intelligently in solving community health problems.

Goals For Professional Educators. Comprehensive sets of goals for teachers, administrators, and others engaged in professional education have been generated in a number of ways. The process has been facilitated by an emphasis on competency-based teacher education but draws its power from the systemic concept that professionals should be prepared in an integral system. Several approaches have been employed in this process (Houston, 1975).

Perception is the most commonly used approach. Groups are asked to identify behaviors needed in a particular role. That role may be general—all elementary teachers—or targeted on a particular group—elementary teachers in a district's open classrooms. These may be obtained through open discussions, Delphi techniques (see Chapter 9), interviews, or descriptive statements. They typically are specified as a set of goals or competencies and rated or ranked in terms of importance. They may also be analyzed to assure completeness and balance.

The second approach to specifying professional goals, *Conceptual Models*, assumes that effective instruction is related to a theoretical position and holds professionals accountable for demonstrating that position. The conceptual construct may be related to the background of the teacher (e.g., practicing behavioral scientist), to the processes used by the teacher (e.g., rational decision-maker) or to the approaches used in teaching (e.g., models of teaching). Success as a teacher is demonstrated by congruence of behavior with that specified in the model. This is an important distinction, since other approaches assume that success as a teacher is demonstrated when learners achieve.

In *Task Analysis*, each professional role is analyzed to determine what tasks are performed by practitioners. Teachers are observed or interviewed to determine what is included in the role description. In other cases, teachers keep activity logs which are translated into goals. In still other cases, a particular task is analyzed logically for the behaviors and knowledge required.

In *Course Translation*, the staff reformulates requirements of current courses into goal statements without reconceptualizing the program, the relevancy of content, or approaches employed in the course.

In *Use of Other Lists*, the staff relies for its initial input on work from the field. It collects the competency specifications or goals formulated by other programs and either uses them as they are or modifies them.

Negotiation may be linked with any other approach but is distinguished by the procedures used in final determination of goals. The staff typically sits around a table, discussing, editing, and modifying statements. Staff members with more persuasive arguments, the most tenacity, the loudest voices, or the sharpest editing skills seem to prevail in the final listing.

In the *Needs of School Learners* approach, the teachers' preparation program is based on a process that begins by identifying the needs, values, and perspectives of learners. Then, the kind of school organization and program that facilitates achievement of these goals is described. Third, personnel needs for such a school are specified, and teacher competencies are identified. This long, systematic process is rooted in the basic purpose for the teachers' competence—to help learners.

The *Community-Based* approach is similar to the last one; it examines the consequences of teacher action and then formulates a teacher education program to cope with those consequences. This approach adds a step to the process outlined in the "Needs of School Learners" approach; it begins by assessing the needs of society and of a particular community before speculating on student needs and values.

Targeted Sets of Goals

The number of goals to be included in the needs assessment is often limited by the steering committee prior to data collection. The resulting goals may reflect their own priorities for a school (these are the *most important* goals); they may reflect potential areas of need (these are the areas *in which improvement is most needed*); or they may target a *particular problem* in the school (e.g., poor interpersonal relations, low morale, drugs).

Goals ultimately derived for the first two areas may be drawn from more comprehensive lists. Those included in the third area typically evolve out of the problem situation and usually are idiosyncratic to that situation.

A case study illustrates the process used in one school district to focus needs assessment on pertinent areas of concern. In California, San Jose organized its needs assessment panel to include representatives from several institutions. The eighteen-member panel included eleven parents, two central office administrators, two teachers, one community representative, and two community agency directors. Beginning with the forty-one goals in the Center for the Study of Evaluation system, the panel narrowed the list to ten high-priority goals as a more realistic number to consider. An eleventh goal was subsequently added.

To clarify the meaning of the goals, six different goal definitions or statements were written for each of the eleven goals. Those definitions which best fit individual perceptions were selected by a task force of twelve community representatives not on the panel. A reactionnaire based on the resulting goal descriptions was completed by parents. Descriptions of the first three goals are included in Exhibit 25.

Exhibit 25: Three Goals Selected for San Jose Study
Source: San Jose Unified School District, 1972

1. ATTITUDES

   The curriculum should focus on the student's adjustments and well-being, teach the benefits of cooperation, instill confidence, a sense of responsibility, respect for self and others, and an interest in other people.

2. MATHEMATICS

   The student should understand math concepts and be able to work with whole numbers, fractions, percentages, and he should be able to apply this knowledge to practical problems of daily living, e.g., balancing a check book.

3. READING

   Emphasis on reading comprehension with careful consideration given to vocabulary and pronounciation; ability to write what is read. Reading should be taught as a pleasurable experience. An adequate library should be available to students.

Particularly with project-derived goals, confusion occurs between *goals*, *symptoms*, and *processes*. For example, one project set as its goal to "improve an alternative school" when it actually wanted to design and test procedures, content, and organizations so that students could increase their self-concepts and have opportunities to explore unique programs of study. The former, which focuses on an organization, would be judged in terms of changes in the organization. The latter, which is student-focused, would be judged in terms of student change. Regardless of whether goals are broadly conceived or targeted, they should be examined and redefined until they focus on changes desired in learners.

The following principles for stating goals may provide criteria for examining a list of them:

1. **Each goal is clearly stated.**
2. **Each goal uses current terminology.**
3. **Each goal conveys a consistent message.**
4. **Abbreviations and acronyms are avoided.**
5. **Statements are brief.**
6. **Each goal is a complete sentence.**
7. **Multiple verbs are avoided.**
8. **Each goal is specific, observable, and measurable.**

9. Each goal represents an important change in behavior or challenge for students.
10. Each goal is realistic and attainable.

Numerous examples of goals have been provided in this chapter. Each should be examined while considering the criteria for stating goals. It is noteworthy how few goal statements are adequate; some are actually nouns naming classes of behavior; others describe processes rather than outcomes; while some are not even related to students.

Prioritizing Goals

Identifying a set of goals for a school or college is the first step in the needs assessment; prioritizing them is the second. The latter provides data on goals which are considered most important.

Determining priorities is an important decision to be made by needs assessors. Priority can be established using one of three criteria. In some cases, those goals *most in need of attention* are considered as highest priority. In other cases, goals that are most *important* are listed as highest priority. The third procedure is based on goals requiring greater *emphasis*.

A number of processes adapt themselves to prioritizing goals. Several are described in Chapter 9, including:

1. *The Delphi Technique* which permits respondents to refine their goal ratings without meeting face-to-face.
2. *Force Field Analysis* which causes groups to consider forces for and against achieving a particular goal.
3. *Simulation/Gaming* which encourages groups to place recommendations in a more realistic context.
4. *Group Process Techniques*, such as "Town Meetings," "Speakups," or "Fishbowls," in which individuals challenge and defend goals to better understand their implications.

These strategies help focus attention on potential future needs and conditions rather than on present ones. Many of these techniques require small group interaction. Indeed, Keith Atcheson, among others, hypothesizes that such open unrestricted settings are the only viable ways to determine goals and to establish meaningful priorities.

Kaufman (1972, p. 37) notes that by their processes needs assessors often limit themselves to curricula currently in use and to goals currently being considered. He recommends ranking problems or goals in terms of two simultaneous questions: "What does it cost to meet the need?" and "What does it cost to ignore the need?" This practice permits needs assessors to consider each goal in terms of its priority and imperative frame.

Reactionnaires are often used to elicit perceptions of goal priorities. Two forms for responses have been employed: rating scales and ranking procedures. These are described in the following two sections.

Rating Scales

A number of formats have been devised for collecting data on the goals that are perceived as having the highest priority. In the Quality Education Program Study (Bucks County, 1971), a rating scale was used to describe the importance of a goal (Exhibit 26). The Center for the Study of Evaluation (Hoepfner et al., 1972), also concerned with perceived importance, used these five ratings: (1) Unimportant, Irrelevant, (2) Marginal Importance, (3) Average Importance, (4) Moderate Importance, and (5) Most Important.

Exhibit 26: Rating Scale Used
by Quality Education Program Study
Source: Bucks County Public Schools, 1971

	Least Important	Marginal Importance	Average Importance	Important	Most Important
AREA I. Shows appreciation for achievements of others.	— 1	— 2	— 3	— 4	— 5

Exhibit 27: Rating Scale Used in Phi Delta Kappa Needs Assessment
Source: Phi Delta Kappa

8. Learn to respect and get along with people with whom we work and live

A. Develop appreciation and respect for the worth and dignity of individuals.
B. Develop respect for individual worth and understanding of minority opinions and acceptance of majority decisions.
C. Develop a cooperative attitude toward living and working with others.

EXTREMELY POOR	POOR	FAIR BUT MORE NEEDS TO BE DONE	LEAVE AS IS	TOO MUCH IS BEING DONE	Score
1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	

Rand and Stover (1971) prioritized goals by determining the extent to which respondents felt each goal should be emphasized. Their rating scale includes these options:

1. Greatest Emphasis
2. Secondary emphasis
3. Moderate Emphasis
4. Minimum Emphasis
5. Omit

Phi Delta Kappa (Rose *et al.*, 1974) uses a more complex rating system. Because of more positions on the scale, because it involves both negative and positive values, and because each scale carries two meanings, interpreters must consider multiple messages. Exhibit 27 illustrates one scale from the instrument. In response to the question. "How well are current programs meeting this goal?", Phi Delta Kappa respondents circle a numeral reflecting their perception. If either 1, 2, or 3 is marked on the scale, two meanings are possible: (a) "I believe students are *not being taught* the skills necessary to meet this goal," or (b) "This goal is the school's responsibility, but *almost nothing* is being done to meet this goal." Marking 10, 11, or 12, "Leave As Is," would indicate, "I belive the school is doing a *good job* in meeting this goal," or "I am satisfied with the present programs which are designed to meet this goal." Respondents circling 13, 14, or 15, "Too Much Is Being Done," reflect perceptions that they "believe the school is already spending *too much* time in this area" or that they "believe programs in this area are *not the responsibility* of the school."

The Battelle Memorial Institute (1972) designed a survey of educational needs that elicits community perception of school activities, policies, personnel, and programs. For each of the eighty-five statements, parents and non-parents indicate the extent to which each should exist in the school (Exhibit 28). For comparison purposes, they respond to a similar scale in terms of "acutally exists" while the difference between the ratings is used for determining need.

Ranking Goals

One of the shortcomings of rating scales is the tendency for respondents to rate all goals equally high, leading to less discrimination among them. When there are few goals (less than a dozen), they can be *ranked* from lowest to highest. This is illustrated with the following goals for multicultural education:

	Goal
4	Increase student's knowledge of other cultures.
3	Enrich student's life personally through a multicultural environment.
1	Modify student's behavior as a result of multicultural experience.
2	Promote interaction among persons of different cultures.

While all four goals are considered important, choices have to be made concerning which are more important. Ranking forces respondents to make such choices.

When a greater number of goals is listed, ranking becomes more difficult and cumbersome. The Phi Delta Kappa system

Exhibit 28: Rating Scale Used
in Battelle Needs Assessment
Source: Battelle Memorial Institute, 1972

SHOULD EXIST

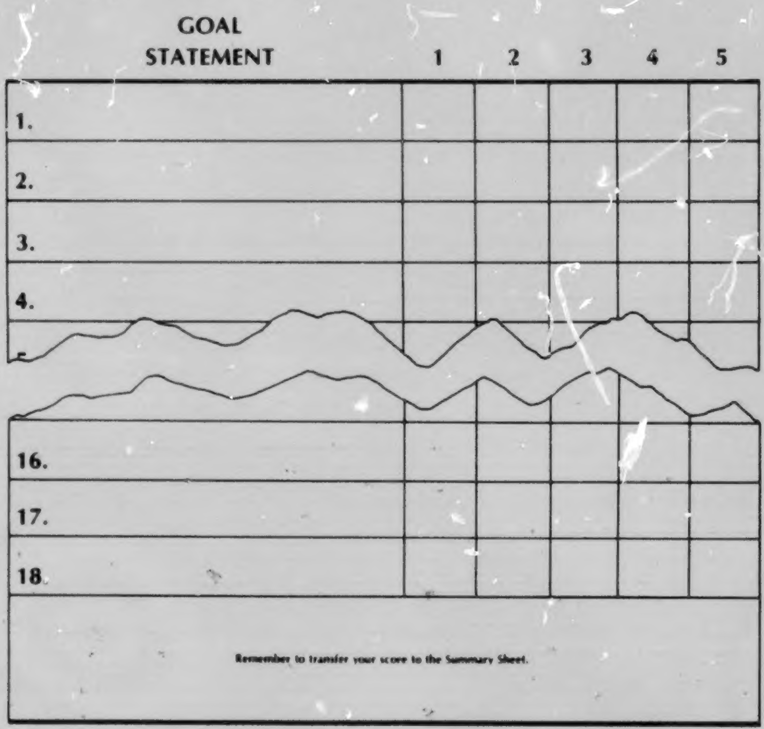
Do not know	Not at all	To a slight extent	To a moderate extent	To a fairly large extent	To a very large extent
?	1	2	3	4	5
____	____	____	____	____	____

(Rose *et al.*, p. 7) uses markers to weight various goals. Participants are provided a set of forty-five red markers and a board on which each of eighteen goals is written. The form is illustrated in Exhibit 29. Each participant is instructed to place a red marker in the first column beside each goal statement, using eighteen of the forty-five markers. A second red marker is placed in column 2 beside goals believed to be more important than the others. Those goals with two markers are reread, and a marker is placed in column 3 beside those judged still more important. These steps are repeated for columns 4 and 5 so that each goal has from one to five markers. All forty-five markers must be used, and at least one goal must have five markers beside it. After all forty-five markers have been distributed, they may be rearranged until the respondent is satisfied with the relative weighting of goals. In the rearrangement, all markers may be withdrawn from a goal. The rating for each goal is determined by the number of markers beside it (e.g., goals with four markers are rated 4; those with two markers are rated 2). This rating for each individual goal is written on a summary sheet for the group.

The same procedure may be used with any number of goals. The number of spaces available in a chart is equal to the number of goals times the number of ratings (five in this case). Markers are provided for half this number. If twenty goals are to be rated, fifty markers will be needed (20 goals × 5 priorities = 100 spaces ÷ 2 = 50).

A similar process is used in the needs assessment system

Exhibit 29: Phi Delta Kappa Goal Ranking Form
Source: Phi Delta Kappa



GOAL STATEMENT	1	2	3	4	5
1.					
2.					
3.					
4.					
16.					
17.					
18.					

Remember to transfer your score to the Summary Sheet.

developed at the Center for the Study of Evaluation. Parents are given the following instructions in rating goals (Hoepfner, *et al.*, p. 21):

> Accompanying is a pack of 106 printed cards, each one bearing a goal of elementary education, and 5 blue rating mats. The goals differ in importance. Our school should devote more time, effort, and resources to having the students achieve some of them than it should devote to others. Similarly, progress in achieving the more important goals should be monitored more closely to insure early detection of problems. Information about the relative importance of the goals is necessary, therefore, in helping us plan both our educational programs and procedures for evaluating them.

> If you have a child attending the school, you should make all your ratings on the basis of what you feel your child should learn and know at his grade.

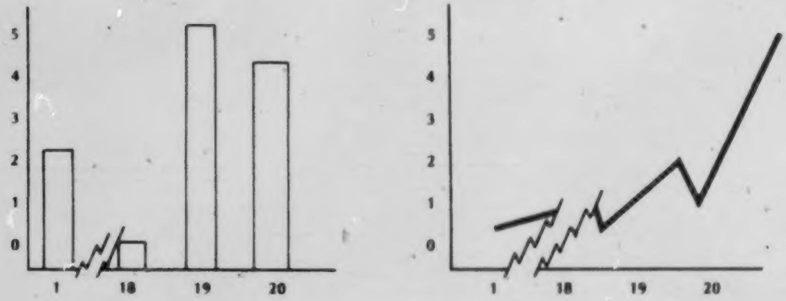
Participants then place five blue mats before themselves and sort the goal cards into five piles in terms of their importance. Placement of at least five goal cards in each pile is required. After all cards are sorted, each goal's rating is listed on a summary sheet, with those on the first blue mat, "Unimportant, Irrelevant," rated "1"; those on the second blue mat rated "2", and so forth.

Analyzing Priorities

The data from instruments such as those described above should be synthesized for easy communication of results. Several relatively simple processes are typically used:

1. Goals are ranked according to their rating or combined rankings and listed in rank order.
2. The mean rating for each goal is found and listed. This is more easily interpreted when the higher value reflects more positive attitudes (1 is low and 5 is high rather than the reverse).
3. Population subgroups are considered separately to show differences in ranks among parents, teachers, students, and other relevant groups.
4. Mean ratings may be shown as histograms or graphs to emphasize differences visually (Exhibit 30).
5. Simple statistical computations, such as t-tests, can be used to deter-

Exhibit 30: Illustrations of Bar and Line Graphs



GOALS—Bar Graph

GOALS—Line Graph

mine if significant differences exist between goal assessments. Analysis of Variance provides a procedure for considering the difference among populations and goals while multivariate techniques provide ways to cluster goals by factors. The use of computers and a good statistician can improve the interpretation of goal priority data (or perhaps confuse the process if used without understanding).

Summary

The first stage in the needs assessment is formulating goals. These should be focused *only on learners*, not on processes, organizations, or programs with which they might interact. Goal formulation involves three parts: (1) identifying goals, (2) prioritizing goals, and (3) analyzing priorities. Many sets of goals have been written and can be used in the initial decisioning process. What is important is that they are valid and relevant for the audience for which they are intended.

This is an important phase in changing educational practice. Goals can be made more explicit and used as the basis for guiding changes in practice. They can be used as benchmarks to assess the extent to which progress is being made.

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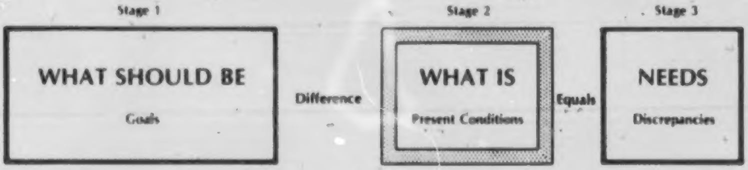
5

Collecting Data on Current Conditions

The needs assessment process includes three major stages. The first stage, Formulating Goals, is concerned with identifying ideal conditions for learners (Chapter 4). This chapter is concerned with *Documenting Current Conditions*, Stage Two in the process. The discrepancy between current conditions and goals becomes a statement of needs to be addressed. Determining those needs is the subject of Chapter 6. An extension of the needs assessment algorithm is depicted in Exhibit 31.

Exhibit 31: Extended Algorithm for Needs Assessment



A major distinction between the targets in Stage One and Stage Two should be noted. *Goals* are specified only in terms of *learner outcomes*. The instructional program and school organization are vehicles to achieve goals; they are not goals themselves and should not become goals of the needs assessment process. When assessing *current conditions*, however, all three targets of the needs assessment (people, programs, and organizations) are assessed. Each provides unique information on goals. Without considering all three targets, the results are likely to be less than adequate.

The power of a survey of current conditions is often diminished for three reasons. *First*, data collected are not related *specifically* to goals; and when data interpretation occurs, there are not sufficient opportunities for comparison.

Second, too many data are collected because of a temptation that plagues many needs assessors—"now-that-might-be-interesting-information; let's-collect-it." Instruments become longer and more complex; the decision is made to analyze data by subgroups (e.g., roles, age, sex, and demographic variables); and complicated statistical techniques are remembered from graduate school and utilized. The process soon becomes too long and too tedious. Far too many resources are required to collect and analyze such a mass of data, and too much time elapses before results are interpreted. The long-range goal—to improve education—is lost in the mire of data, and the steering committee loses its momentum and perspective before initiating the change process.

Third, too much reliance is placed on the perceptions of individuals rather than on broadening the data collection to include a wide range of processes. Too little time is spent in creatively considering alternative data sources, including available test results, documentary evidence, community sources, and census figures.

Procedures related to data collection are discussed in this chapter while Chapter 10 provides lists of variables and illustrative instruments. Five steps are included in the data collection process: (1) design and plan data collection, (2) identify data sources, (3) select and/or develop instruments, (4) collect data, and (5) analyze data. Each of these steps is considered in this chapter. A concluding section lists proposed criteria for assessing the effectiveness of the assessment system.

Design and Plan Data Collection

Planning for data collection is part of the overall planning process of the needs assessment. Since that has been considered extensively in Chapters 2 and 3, only a brief discussion will be included here. For each goal, several decisions should be made: (1) What are indicators of goal attainment? (2) From what sources are data available? (3) What data can be collected from what source? (4) What procedures are needed to collect and analyze these data? A planning tool which helps in formulating plans is included in Exhibit 32.

Exhibit 32: Illustrative Planning Chart for Data Collection

Goal Statement	Indication of Attainment	Respondent Group	Number Required	Mode of Data Collection	Source	Time Required	Responsible Individual	When Collected
1. Improve mathematics achievement of students	achievement	3, 6, 9, 11 grade students	all	Calif. Test Battery	Calif. Test Battery	90 min.	Smith	avail.
	extent of math instruction	teacher	10% of teachers grades K-8	Observation of math lessons for time-on task	to be dsgnd.	30 min. per day for 10 days	Faseler	Oct. 10-Nov. 4
				Interview time planned for math	to be dsgnd.	2 min. as part of tchr. intervw.	Faseler	Oct. 10-Nov. 4
	parent commitment to math achievement	parent	1%	small group discussion	to be dsgnd.	5 min. in 1 hour discussion	Senter	Nov. 1-Nov. 20

Considerations in completing the exhibit are included in other parts of this chapter. Such a chart helps to conceptualize the extensiveness of data collection and the impact it has on various constituencies. Not all data *can* be collected and not all data *should be* collected. Deluca (1975) makes the point forcefully.

> Before data can be collected it is most important to identify very clearly what information will be collected. There is nothing more useless than irrelevant data and nothing more frustrating than trying to use and interpret it. To avoid such pitfalls it is necessary to identify what information needs to be collected and to outline the reasons the information is necessary.

The Arizona State Department of Education (1972) concentrated on basic skills as its highest priority and sampled one grade "rather than a diluted multi-grade approach (because) it was decided that resources would be concentrated . . . to obtain a higher degree of precision."

In making decisions about the scope of data collection, several factors should be considered:

1. *The relative importance of goals.* Those considered more important by the constituent group should receive greater attention in analyzing current conditions.
2. *The cost involved in data collection and analysis.* Costs include the expense of purchasing instruments, analyzing data, and the time of respondents in completing instruments. This latter consideration is often not considered, yet it may be a major cost factor.
3. *Validity of results in terms of goals.* Data that do not provide adequate and valid information are not useful.
4. *Feasibility* of data collection, including the availability of respondents, tests and instruments, and data analysis processes.
5. *Impact* of data collection on target audience/system.
6. Extent to which data collection processes *generate support* for subsequent programs.

Identify Data Sources

The assessment of current conditions is more likely to be valid and to draw out nuances related to goal attainment when the widest range of data sources is considered. These can be drawn from all three targets of needs assessment—people, programs, and organizations. Data sources may be classified as documentary or person-oriented.

Documentary and Person-Oriented Sources

Documentary sources of data are neglected in many needs assessments. Data from such sources include but are not limited to (a) population and age distribution, (b) dropout rate, (c) community demography, and (d) financial resources. Such information is included in reports and records available in central school offices, county courthouses, and state departments of education. They include (a) final project reports, (b) attendance records, (c) census tract information, (d) achievement test results, (e) cumulative record folders, (f) newspaper reports, (g) financial records, (h) reports from colleges to schools on their graduates, and (e) surveys of school facilities.

Person-oriented information includes data on attitudes, values, achievement, perceptions, behaviors, and consequences of behavior. Such information may be secured by *direct observation* or by *questioning* people (through instruments, interviews, or group discussions). Data may refer to students, teachers, administrators, paraprofessionals, college faculty, community leaders, parents, and graduates of schools. Educational Systems Associates (1972, p. 14) described several groups which could provide data for the study:

Community-Business
A. Company officers
B. Labor union leaders
C. Local government leaders

Community-Educational
A. Higher education personnel
B. Public school teachers
C. Public school administrators
D. School board members
E. Parent advisory groups

Community Citizens
A. Parents
B. Senior citizens
C. College students

Students
A. Elementary/secondary
B. Urban/rural
C. Male/female
D. Ethnic balance
E. Identified schools

Witkin (1975, p. 26) posed a caveat for those collecting data from community groups:

> Research shows that the usual sources of information to parents on what the schools are doing and how well they are doing it are

> their children, neighbors, and the news media. Very little information comes from school boards or school staff. Parents often have limited bases for judgement. If the major data base in the needs assessment is to be subjective judgements of citizens on the degree to which the school is presently attaining its goals, the validity of the judgements will be enhanced by preceding the goal statements with factual information.

Emphasizing practical considerations, Houston and Bain (1972, p. IV–4) pointed out that if "certain members of the community (are to be surveyed) at the exclusion of others, it must be possible to identify and contact them. If mailouts are used, addresses will be necessary. If house-to-house contact is employed, the geographic parameters of each group's area must be established. If open meetings are held, there must be viable ways of publicizing them and encouraging attendance."

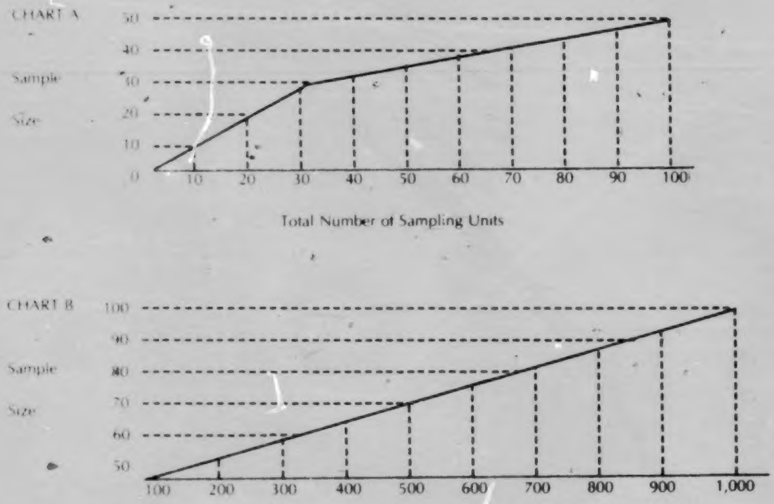
Sampling Processes

In an achievement testing program, the total population may participate in the needs assessment. However, sampling from the various populations often provides a valid data base as adequate as if the total population were studied at a fraction of the cost in time and money.

The first step in a sampling procedure is to define the populations to be surveyed. Are the opinions of all members of the community to be elicited or only those of parents? Will paraprofessionals, cafeteria workers, maintenance personnel, and custodians be contacted? Each population that is identified is related to information it could logically and accurately supply in the needs assessment process.

The second step is to determine the sample size, which should be sufficiently large and representative so that inferences based on sample responses give an accurate indication of those for the total population. In general, the larger the sample, the more representative it is likely to be. The specific size of the sample depends on the reliability of the instrument, the method used in choosing the sample, the size of the population, survey costs, time constraints, and the procedures employed in analyzing data. The Houston Needs Assessment (Houston and Bain, 1972, p. IV–55) provided charts as guides to selecting an adequate sample size: (1) a chart for a population of 100 or fewer persons, (2) a chart for a population of 100-1000 persons, (3) data for a population of 1000-2000 persons, and (4) data for groups larger than 2,000. These are shown in Exhibit 33. One needs assessment system selected

Exhibit 33: Sample Sizes Relative to Number of Sampling Units



(For 1,00 to 2,000 sampling units, use sample size of 100 persons)

(For more than 2,000 sampling units, use sample size of five percent of the total sampling units)

six students from each class as an appropriate sample size while national surveys, such as Roper or Gallup, rely on carefully constructed, stratified samples of about 1,500 persons.

The *third* step in the sampling process is to identify the particular persons to be surveyed. Numbering members of the population and using a table of random numbers to select members from the group is one way to insure that bias does not enter into the sampling process. Tables of random numbers are found in the appendices of most statistical textbooks while computers can be programmed to generate such lists.

For example, students' names are typically listed by number in teachers' attendance and grade books. Random numbers can be used to select students for interviews, small group discussions, tests, targeted observations in the classroom, or whatever data collection would be utilized. As an example, six students from a class of 27 can be identified by using the table in Exhibit 34. Some numbers are irrelevant because they are greater than 27 while others have been repeated in the random-draw process. Beginning with the left-hand column and reading vertically, the first usable number is 03, then 17, 11, 26, 04, and 05. The students whose names were in these positions in the attendance roster would have been selected for testing.

Exhibit 34: Table of Random Numbers

03	99	11	04	61	93	71	31
38	55	59	55	54	32	88	65
17	54	67	37	04	92	05	24
32	64	35	28	61	95	81	90
69	57	26	87	77	39	51	03

For community groups, a similar process can be used, drawing parents from student attendance rolls or community representatives from lists of organizations. Population samples can be determined in a cluster of schools by using maps of the school district or by using:

1. Census tracts of the school district, identified from county or state records, with samples drawn from each one.
2. City blocks, numbered consecutively (beginning with 1), then using a table of random numbers to select the blocks to be included in the survey.
3. All street names listed on pieces of paper and drawn from a container with houses on those streets surveyed. House numbers also may be drawn randomly to narrow the scope of the survey.

The same procedures can be used with stratified samples of a population (using, for example, race, age, economic status as stratification criteria). Arizona needs analysts (1972, p. 12) summarized the need for care in selecting samples:

> The major goal in designing a student sample is to select a representative group that accurately reflects the total group in those characteristics under study. If this endeavor is successful, valid generalizations can be made about the total group concerning achievement in the selected basic skill areas from data obtained through testing the sample group.

Select and/or Develop Instruments

In selecting or developing instruments, several questions should be asked:

1. Does this instrument provide data specifically related to the goals of the study?
2. In what form are results reported? Before selecting, the extent to which the results will be useful should be considered.
3. How much time is required to administer the instrument?
4. How much time is required of the person completing this and other instruments in the study? Is it reasonable? Are the data obtained from each instrument worth the time required?
5. Is special processing or scoring of the instrument required? How much time and cost are involved?
6. Is there another, better way to obtain these data?
7. To what extent is the instrument valid? reliable?
8. What adverse side effects might be anticipated from administering the instrument?

Indicators

The first stage in selecting instruments is to specify *indicators of goal attainment*. The question is posed, "If this goal were achieved 100 percent, what would be occurring and what indicators would be evident?" These indicators provide clues to the type of data to be collected and the instruments to be used.

The broader the sources of indicators considered in the process, the more likely the needs assessor is to design sharp, valid, and useful instruments. The three targets of needs assessment provide a framework for considering data sources and potential indicators. Exhibit 35 suggests a format for specifying indicators which should stimulate diverse thinking.

Exhibit 35: Classes of Data to Consider
When Developing Indicators of Goals

GOAL:

Indicators of Goal Attainment	Indicators of Goal Non-Attainment
When Considering People	**When Considering People**
Student	Students
Professional Educators	Professional Educators
Community Representatives	Community Representatives
When Considering Organizations and Communication Systems	**When Considering Organizations and Communication Systems**
School and School District	School and School District
College and University	College and University
Community and Other Relationships Among Institutions	Community and Other Relationships Among Institutions
When Considering Programs	**When Considering Programs**
Student's Curriculum	Student's Curriculum
Professional Educators at School and College	Professional Educators at School and College
Preservice Teachers	Preservice Teachers
Community Educators	Community Educators

Most goals for school improvement involve highly complex phenomena, settings, and interactions. For each of the targets noted in relation to each goal, the question is posed, "What indicators of goal attainment could be reflected by this target?" Conversely, the question is posed, "What indicators of non-attainment are reflected?" The second question will often add indicators not automatically included in the first list. Both lists should reflect phenomena that are potentially present rather than absent in the situation. Inferences are not always correct when assuming that if something is absent the inverse is true. Logicians have difficulty with such conclusions as do those developing adequate needs assessment instruments.

A wide range of variables has been used in needs assessment studies. They have been applied to people, to programs, and to organizations.

People-oriented variables are typically directed to role groups, such as college and school students, teachers and professors, administrators, other educational personnel, and parents/community members. Variables have included personal characteristics, personal and professional jobs and priorities, achievement, attiitudes, and sociological context.

Program-oriented variables have included content and sequence, strategies, and resources for comprehensive programs, lessons, units, or modules.

Organization-oriented variables have included governance, organization, and management of classes, schools, school districts, colleges and universities, and interinstitutional relations.

Chapter 10 describes a format for classifying variables that may be useful in determining the range of data needs. Appendix A lists illustrative variables for needs assessment.

Variables and Data Collection Methods

A task force in Virginia formulated a set of indicators and instruments of measurement of each educational goal for the state. The indicators for Goal 13, "Participate in Society as a Responsible Citizen," are reproduced in Exhibit 36. For each indicator, Virginia educators listed several instruments that could be used as data collection devices. Tables such as this promote a wider range of data collection processes and instruments and a potentially more valid study.

Exhibit 36: Some Indicators of Student Performance and Instruments for the Goal, "Participate in Society as a Responsible Citizen"

Source: Virginia Department of Education, 1976

Goal III:
Participate in Society as a Responsible Citizen

Indicator of Student Performance	Instrument of Measurement
1. Participation in civic activities	1.1 Survey of students: support of or membership in enumerated civic activities, including offices held +
	1.2 Survey of local civic organizations: student membership in and support of enumerated civic activities +
	1.3 Survey of parents: children's membership in and support of enumerated civic activities, including offices held +
2. Acceptance of civic duties and responsibilities	2.1 Survey of students: (a) number eligible to vote and percentage who vote (b) number who attend local government functions – city council, board of supervisors meetings, special hearings, etc. +
	2.2 Local registrar's records
3. Acceptance of responsibility for self-discipline	3.1 Survey of administrators and teachers: degree of student concern for rights of others +
	3.2 School Records: (a) amount of vandalism in school (b) number of student-led disruptions (c) number and kinds of discipline cases handled by school administration
	3.3 Law enforcement agency records: number of students arrested
	3.4 Survey of law enforcement agencies: student respect for law +
	3.5 Survey of students: student respect for law +
	3.6 Survey of guidance counselors and/or administrators: number of citations for good citizenship received by students +

Exhibit 36 (cont.)

Goal III:
Participate in Society as a Responsible Citizen

Indicator of Student Performance	Instrument of Measurement
4. Participation in school organizations and activities	4.1 Survey of club and/or activity sponsors: number of students participating in school government, newspapers, clubs, and other voluntary school activities +
	4.2 Survey of students: number involved in school and club elections +
	4.3 Survey of teachers: extent of student participation as responsible citizens +
	4.4 School records: extent of participation of students as volunteer tutors
5. Acquisition of knowledge and skills for decision making and problem solving/knowledge of the meaning of responsible participation	5.1 Teacher-made tests: understanding of and ability to participate in group process
	5.2 School records: number of students completing courses such as government and civics
	5.3 School records: instances of student behavior which demonstrate a concern for the rights of others
6. Acquisition of knowledge of political processes, personalities, and events	6.1 Teacher-made tests: knowledge of political process, personalities, events, and issues
	6.2 Survey of students: newspaper reading and TV/radio news viewing and listening habits +
	6.3 Standardized (norm-referenced) tests*
	6.4 Criterion-referenced tests*

+ Wherever possible a single survey should be developed to secure information about several indicators. See the Appendix for suggestions on developing and administering surveys.

* For a guide to some of the tests available in this area, see the publication, "Test Director's Handbook," prepared by the Testing Service, State Department of Education.

Several methods of collecting needs assessment data are analyzed in Exhibit 37. For each of seven types of instruments, the data resulting as well as the advantages and disadvantages are listed.

Sources for Instruments

Currently available are a number of excellent sources which provide illustrations and analyses of instruments useful in needs assessments. Standardized instruments are illustrated and discussed in the following sources.

1. Borich, G. D., and Madden, S. K. *Evaluating Classroom Instruction: A Sourcebook of Instruments*. Reading, Mass.: Addison-Wesley, 1977.
   This book describes instruments about teachers, classrooms, and pupils; while actual instruments are not included, their reliability, validity, and norms are discussed for standardized and non-standardized tests.
2. Buros, O. K. *The Fourth Mental Measurements Yearbook*. Highland Park, New Jersey: Gryphon Press, 1953.
3. Buros, O. K. *The Fifth Mental Measurements Yearbook*. Highland Park, New Jersey: Gryphon Press, 1953.
4. Buros, O. K. *The Sixth Mental Measurements Yearbook*. Highland Park, New Jersey: Gryphon Press, 1965.
5. Buros, O. K. *The Seventh Mental Measurements Yearbook*. Highland Park, New Jersey: Gryphon Press, 1972.
   This series of authoritative yearbooks analyzes standardized tests in print.
6. Center for the Study of Evaluation. *CSE-RBS Test Evaluations: Tests of Higher-Order Cognitive, Affective, and Interpersonal Skills*. Los Angeles: Center for the Study of Evaluation, Graduate School of Education, University of California, 1972.
   This resource, included in the CSE Needs Assessment kit, provides an analysis of elementary school tests, using measurement validity, examinee appropriateness, administrative useability, and normed technical excellence as criteria.
7. Johnson, O. G., and Bommarito, J. W. *Tests and Measurements in Child-Development*. San Francisco: Josey-Bass, 1971.
8. Ryans, D. G. *Characteristics of Teachers*. Washington, D. C.: American Council of Education, 1960.
9. Travers, R. M. W. (Ed.) *Second Handbook of Research On Teaching*. Chicago: Rand McNally, 1973.

Existing programs in the school district where the needs assessment is being conducted may dictate the choice of stan-

Exhibit 37: Some Common Means of Collecting Data

KIND OF INSTRUMENT	DATA RESULTING	ADVANTAGES, DISADVANTAGES
WRITTEN SURVEY TO ALL MEMBERS OF A POPULATION OR TO A RANDOM SAMPLE: A set of written questions to which people are asked to respond in writing	(Can vary considerably from "hard" data about sample characteristics to "soft" data about the sample's opinions)	For large sample populations, compilation of results is time-consuming; written responses do not always distinguish "shades of meaning"; semantic problems are often not identified; return rate is often low; but "hard data" otherwise recorded can be systematically collected; relationships between certain variables can be statistically evaluated; relatively large numbers of people can be polled.
STRUCTURED INTERVIEW: A face-to-face interview in which the persons being interviewed are asked the very same questions in every interview, a kind of one-way communication with feedback.	(Same variability as for written surveys)	Complex scheduling problems; length of time required for an interview reduces the number of people who can realistically be polled; uniformity of interviewer behavior hard to maintain from interview to interview or from interviewer to interviewer; interviewing requires relatively skilled data collectors; *but* interview responses can be checked for clarity through paraphasing; usually 100 percent of a sample can be polled; people are often more comfortable talking than writing.
RECORD SEARCH: The compilation of selected facts from existent records, either on a sampling basis or for an entire population.	Mostly "hard" data, such as numbers of people having certain characteristics or experiences; frequency of certain incidents which are recorded on permanent records, etc.	Done manually it can be very time consuming; quality of data is dependent upon the quality of the records; kind of data is limited by what is available in the records; *but* when the records are stored via EDP, data can be obtained very quickly; because most records are uniformly kept, reliable data can be obtained about a large population.

KIND OF INSTRUMENT	DATA RESULTING	ADVANTAGES, DISADVANTAGES
OBSERVATION CHECKLISTS: Written instruments for recording selected overt behaviors.	Data regarding the frequency with which certain desired behaviors are exhibited by a given person within a certain period of time.	Requires trained observers; accuracy is difficult to maintain; relatively small populations can be observed; *but* more valid data is acquired than if the persons being observed are asked to report their behaviors.
STANDARDIZED TESTS: Instruments for measuring specified kinds of knowledge; the results of which can be compared to those obtained from the population in general.	Data regarding the degree of knowledge or skill in a specific area possessed by a given group of people.	Use is limited to the measurement of the behaviors stated by the test; statistical interpretations can be confusing; *but* data obtained is statistically valid and reliable enabling comparisons over time or from group to group.
NON-STANDARDIZED TESTS: Instruments which are "locally" designed to measure specific kinds of knowledge or skill possessed by a group of people. Best example: teachers' classroom tests.	(Same as for standardized tests)	Usually less reliable and less valid than standardized tests; time must be spent developing the instrument; *but* the test is "custom-made" for the program so data are typically more relevant.
LOGS: Instrument for recording pre-specified activities or incidents.	Rate of occurrence of certain desirable (or undesirable) incidents; amount of time spent in conducting certain activities, etc.	Resistance among those filling out logs is common; orientation and supervision can be time-consuming; high rates of error or omission in recording can affect accuracy of data; *but* it is an excellent means of relating day-to-day activity to long-term objectives.

dardized tests. Most school districts regularly test student achievement and maintain other information on cumulative record cards. Such a practice can be an asset to a needs assessment study in that longitudinal data may be available to detect achievement trends.

One pitfall of standardized testing lies within its very "normalcy." The normal distribution of statistics can produce a negative beginning according to English and Kaufman (1975, p. 120).

> It is paradoxical that a "needs assessment" derived from standardized tests will, on a large enough sample, always show that 50% of the population are below average and at least 14% or more one standard deviation below the mean. Thus, to allow a standardized test to define a "need" is to build in failure from the beginning for at least a percentage of the students.

Most assessments of need do not rely totally on standardized instruments. Non-standardized instruments are used to probe specific variables that often are not available. Non-standardized tests are illustrated in these sources.

1. *Tests in Microfiche.* Princeton, N. J.: Educational Testing Service, 1976–1977.

   Includes microfiche reproductions of unpublished tests developed by individuals and organizations that have been mentioned in the professional literature and includes an annotated index. Four sets have been reproduced to date: A, B, C, and D.
2. Good, Thomas L., and Brophy, J. E. *Looking In Classrooms.* New York: Harper and Row, 1973.
3. Medley, D. M., and Mitzel, H. E. Measuring Classroom Behavior by Systematic Observation. In N. L. Gage (Ed.), *Handbook of Research on Teaching.* Chicago: Rand McNally, 1963.

   This chapter includes copies of a number of classroom observation instruments as well as discussion and analysis of them.
4. Robinson, J. P., and Shaver, P. R. *Measures of Social Psychological Attitudes.* Ann Arbor: Institute for Social Research, University of Michigan, 1969.
5. Shaw, M. E., and Wright, J. M. *Scales for the Measurement of Attitudes.* New York: McGraw-Hill, 1967.
6. Simon, A., and Boyer, E. G. (Eds.) *Mirrors for Behavior: An Anthology of Observation Instruments.* Philadelphia: Research for Better Schools, 1970.

7. Walker, D. K. *Socioemotional Measures for Preschool and Kindergarten Children*. San Francisco: Josey-Bass, 1973.
8. Fox, R. S., Schumck, R., Egmond, E. V., Ritvo, M., and Jung, C. *Diagnosing Professional Climate of Schools*. Fairfax, Va.: NTL Learning Resources, 1973.
9. Systematic Observation (theme issue). *Journal of Research and Development in Education*, 4 (1), 1970.
10. Yelon, S. L. *Constructive Evaluation: Improving Large Scale Instructional Projects*. Lansing, Mich.: Author, 1974.

Collect Data

Data in needs assessments are typically collected using (a) direct observation, (b) questioning (standardized or nonstandardized tests, mailed reactionnaires, interviews, open meetings), and (c) analysis of documentary information. Each type of instrument has its own unique characteristics, requirements for administration, uses, advantages, and disadvantages. Further discussion of these types of data collection procedures and illustrations of instruments are found in Chapter 10.

In planning data collection, it is important to consider the usefulness of data in comparison with the costs in time and resources in collecting the data. It is particularly important to calculate the amount of time required by various respondent groups. When the combination of instruments planned for a particular population is too long or too complex, needs assessors may need either to delete some data collection processes or collect partial data from different samples of the population.

Analyze Date

In needs assessments, goals form the basic unit for analysis. Meaningful results must be related directly to the goals (and to subgoals if at all possible). The purpose of analysis is to synthesize data so that the extent to which current conditions are related to goals becomes evident.

In addition to being organized by goals, analyses are typically classified by (a) student populations to which they relate and (b) respondent populations. The first classification is self-evident—current conditions of elementary students differ from those of secondary students, suburban students from urban students, boys from girls, and others. The extent to which data are analyzed by student populations depends upon the nature of the data and the precision required.

Respondent populations often are used as divisions in analyzing data. The responses of teachers, parents, and students are separately analyzed to determine differences among their perceptions of current conditions. This extends analysis computations proportionally. If students', teachers', and parents' responses are analyzed separately and then totaled, about four times as much data analysis is required than if only totals are calculated.

After data are collected, it is too late to distinguish subgroups. On the other hand, every such division increases the length of the data collection instrument and the extensiveness of the analysis process. Thus, needs assessors do not ask for or use identifying information on instruments without careful consideration.

Some data are best analyzed quantitatively. They include such instruments as achievement tests, rating scales, and numerical documentary data. Others, such as results of interviews, ethnographic studies, historical reviews, and anthropolological studies, are best handled descriptively. These distinctions are discussed further in Chapter 10 with illustrations of instruments.

Some Criteria for Evaluating Assessment Systems

The following criteria may be used to test the adequacy of the data collection system that is developed. The list is not complete or adequate for all purposes; thus, it should be revised to tailor it to local use.

1. Data are specifically related to goals of the needs assessment.
2. A wide range of relevant data collection tools is employed.
3. Instruments collect data on variables related to goals; they are valid.
4. Instruments are appropriate for the audience to whom they will be administered.
5. Instruments tap a wide range of goal attainment levels.
6. Planned sampling is used in data collection.

7. Instruments are relatively free of ambiguity; they are objective and specific.
8. The instrument format is arranged for ease of recording data.
9. Instruments have undergone independent review by a competent person.
10. Data collectors are adequately trained.
11. Data generated from instruments are cost-effective in terms of time and resources expended.
12. Procedures for combining data lead to few errors of subjective interpretation and bias.
13. Information produced through the measurement and reduction process is meaningful.
14. The development cycle for instrument construction, including data collection, validation, and revision, is planned.

Summary

Assessing current conditions involves all three targets of the needs assessment—people, programs, and organizations. Data that are collected must be directly related to specific goals to be interpreted meaningfully. Five steps in the data collection process include (1) designing and planning data collection, (2) identifying data sources, (3) selecting and/or developing instruments, (4) collecting data, and (5) analyzing data. Finally, an assessment of the data collection system itself is important in refining the process.

References

Arizona State Department of Education. *Educational Needs Assessment Program for Arizona*. Phoenix: Author, 1972. (ERIC No. ED 077 935)

DeLuca, N. M. *Community Assessment: Toward Community Responsive Schools*. Author, 1975. (ERIC No. ED 130 459)

Educational Systems Associates. *Needs Assessment Procedure Manual*. Austin: Author, 1974.

English, F. W. and Kaufman, R. A. *Needs Assessment: A Focus for Curriculum Development*. Washington, D. C.: Association for Supervision and Curriculum Development, 1975. (ERIC No. ED 107 619)

Houston, W. R. and Bain, R. *The Houston Needs Assessment System*. Houston: University of Houston, 1972.

Tucson Public Schools. *Educational Management: An Inservice Training Manual for Educational Administrators. Part 2: Needs Assessment*. Tucson, Ariz.: Author, 1974. (ERIC No. ED 120 922)

Virginia Department of Education, Commonwealth of. *Resource Guide for*

Assessing Current Status of Student Performance. Richmond, Va.: Division of Planning, Division of Program Evaluation, 1976.

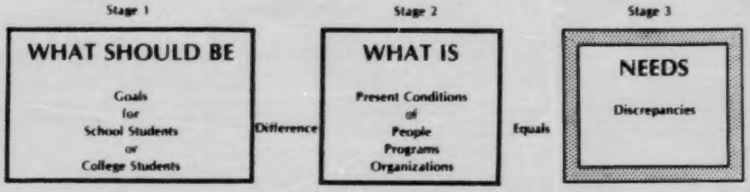
Witkin, B. R. *An Analysis of Needs Assessment Techniques for Educational Planning at State, Intermediate and District Levels.* Hayward, Calif.: Alameda County Superintendent of Schools, 1975. (ERIC No. ED 108 370)

6

Prioritizing Educational Needs

This is the last of three chapters concerned with the processes for determining educational needs. Exhibit 38 repeats the basic paradigm for the needs assessment algorithm.

Exhibit 38: Extended Algorithm for Needs Assessment


Stage 1
WHAT SHOULD BE
Goals
for
School Students
or
College Students
Difference
Stage 2
WHAT IS
Present Conditions
of
People
Programs
Organizations
Equals
Stage 3
NEEDS
Discrepancies

This chapter focuses on the discrepancy between goals and current conditions, Stage Three of the algorithm, or Needs. If the data from Stage One and Stage Two have been collected so that data on current conditions are related to goals, Stage Three is considerably simplified. Data are displayed so that current conditions are compared directly with goals and are easily understood by analysts. Typically, two steps are completed in Stage Three: (1) displaying data on current conditions and goals and (2) prioritizing needs. The first section of this chapter includes several formats for reporting data that facilitates needs identification while the second section is concerned with prioritizing needs.

Reporting Data

Data on current conditions (Stage Two of the model) have been reported in a wide variety of formats and with varying degrees of sophistication in terms of statistical analysis. The primary criterion for data analysis and reporting (perhaps the only one) is *does this information, analysis of its emphasis, and its report provide data that are directly related to one of the needs assessment goals? Data* that are not *directly related* to the goals of the needs assessment are not usable. Regardless of how simple or complex the *analyses* are, they are not helpful if they do not answer the question, "How well is the school or college doing in relation to a particular goal?" *Reports* are less than adequate if they do not synthesize data and highlight discrepancies between ideal and actual conditions.

One way to display data on current conditions is a series of factual statements, each related to an educational goal that is not being achieved. These statements should make no attempt to ascribe causes to the discrepancies. English and Kaufman (1975, p. 39) listed several needs statements of this type:

> Fifteen percent of the senior class could not read an editorial from the *New York Times* with at least 80 percent comprehension as measured by a criterion referenced instrument prepared by the teacher and approved by the department chairman.
>
> After a walk through the surrounding woods, only 6 percent of the first grade students could not recall at least three sounds they had heard or imitate them, draw a picture of the source of the sounds, or explain the source of the sound as peculiar to the woods as measured by a check list kept by the teacher.

Whether such statements represent discrepancies depends on the standards or criteria set for each goal.

Data are displayed to facilitate user comprehension and conversion of information into programs and change strategies. Some techniques for presentation are listed below (International Business Machines, 1963, p. 14):

> A *flow chart* is useful for demonstrating a sequence of events and decisions. Through a series of symbols connected by lines, it provides a framework for relating operations logic requirements.
>
> *Narrative form* is valuable when background information is to be presented . . . and for listing requirements.
>
> *Decision tables* are especially useful for displaying the cause-and-effect relationships in complicated systems logic.

> *Procedure statements* can be employed to describe special problem areas requiring precise computer-level definition.*

Reporting Actual and Ideal Perceptions from the Same Instrument

A number of needs assessment instruments collect data on current conditions and goals using the same instruments. Several of these are included in this section to illustrate the variety of approaches used. The Battelle Memorial Institute Survey of Educational Needs (1976) determines how community members respond to two questions about each of eighty-five statements.

1. To what extent should the condition exist in your school?
2. To what extent does the condition actually exist in your school?

Respondents used the two scales illustrated in Exhibit 39.

Exhibit 39: Rating Scale Used in Battelle Needs Assessment
Source: Battelle Memorial Institute, 1972

SHOULD EXIST	Do not know	Not at all	To a slight extent	To a moderate extent	To a fairly large extent	To a very large extent
	?	1	2	3	4	5
ACTUALLY EXISTS	Do not know	Not at all	To a slight extent	To a moderate extent	To a fairly large extent	To a very large extent
	?	1	2	3	4	5

Teacher Corps Project S.M.A.R.T. (New York University, 1978) used the same responses "Should Exist" and "Actually Exist" to assess training needs of teachers, aides, and administrators. The five-point rating scale and one section of the New York instrument are shown in Exhibit 40.

The *CFK School Climate Profile* (1973) is an example of a commercial instrument used by Teacher Corps projects. The Eastern Montana Teacher Corps Project used it to survey respondents who rated a series of statements in terms of "What

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*Reprinted by permission from *IBM Study Organization Plan: The Approach.* © 1963 by International Business Machines Corporation.

Exhibit 40: Rating Scale Used
by New York University Teacher Corps Project
Source: New York University, 1978

SCALE: (0) Not at all
(1) To a slight extent
(2) To a moderate extent
(3) To a fairly large extent
(4) To a very large extent

	Should Exist	*Actually Exists*
TO THE BEST OF MY KNOWLEDGE TEACHERS AT P.S. 233 WHO:		
41. help children enhance their self image	________	________
42. help children explore their values	________	________
43. know about the moral development of the child	________	________

Is" and "What Should Be." The first five statements and the rating scale are illustrated in Exhibit 41. Boxes at the end of each part of the questionnaire provide space for the summation of ratings.

Another instrument (Laramie County School District, 1976) includes sixty-four subgoals related to eighteen curriculum areas. Parents and recent graduates are asked to consider each statement in terms of "What Priority?" and "School Is . . . ." Thus, comparison can be made between goals considered most important (highest priority) and present practice. A portion of the Wyoming instrument is shown in Exhibit 42.

Instruments such as these that collect parallel data are relatively simple to quantify. Mean ratings for perceptions of ideal conditions (goals) can be compared with mean ratings for current practice on each item in the instrument. In some cases, means are ranked or differences between means are calculated and compared. Some data are displayed to show the rank of the difference in means of goals and of current conditions.

Exhibit 41: Rating Scale Used
in the CFK, Ltd., School Climate Profile
Source: CFK, Ltd.

Part A General Climate Factors	What Is:				What Should Be:			
	Almost Never	Occasionally	Frequently	Almost Always	Almost Never	Occasionally	Frequently	Almost Always
Respect								
In this school even low achieving students are respected.	—	—	—	—	—	—	—	—
Teachers treat students as persons.	—	—	—	—	—	—	—	—
Parents are considered by this school as important collaborators.	—	—	—	—	—	—	—	—
Teachers from one subject area or grade level respect those from other subject areas.	—	—	—	—	—	—	—	—
Teachers in this school are proud to be teachers.	—	—	—	—	—	—	—	—
	☐				☐			

Reporting Data from Multiple Instruments

Needs assessors often collect data on several factors related to a particular goal. Their assumption is that goals are complex and relate to a wide range of current conditions. This is illustrated in Exhibit 43. The mean ratings for four statements of current conditions are compared with a goal. When these four statements are contrasted with the mean ratings for other goals, a relative value can be determined. Interpretation is required in such cases.

Other data related to this goal could have been collected and reported, including (a) reports on the kinds of activities in which students enjoyed participating, (b) sociograms or other sociometric techniques that related current conditions to the

Exhibit 42: Laramie County Goal Analysis Instrument
Source: Laramie County Public Schools, 1978

You are asked to respond to each statement in two ways as follows:

First:
Consider what priority the statement should have in the school program and circle your response accordingly on the left.

Second:
Decide how well the school is doing what the statement says and circle the number on the right that represents what you think.

WHAT PRIORITY . . .						SCHOOL IS . . .				
high	medium	low	none			very much	much	little	very little	undecided
4	3	2	1	(1.1)	Developing skills in oral and written English	5	4	3	2	1
4	3	2	1	(1.2)	Developing skills in spelling	5	4	3	2	1
4	3	2	1	(1.3)	Developing basic reading skills	5	4	3	2	1
4	3	2	1	(1.4)	Developing skills in basic mathematical computation and problem solving	5	4	3	2	1

goal, (c) observations of lunch-time interactions, (d) discussions by student council or homeroom groups, or (e) work schedules. Each type of data has its own characteristics which lead to a preferable format.

The Quality Education Program Study (Bucks County Public Schools, 1971) in Pennsylvania employs two related instruments. In the first, respondents are asked to rate subgoals in terms of their perceived importance. The four sub-goals for Goal IX "Understanding Human Accomplishment" are illustrated in Chapter 5 (Exhibit 23). Each subgoal is rated in terms of its *perceived importance*; the mean of these is computed; and the relative importance of Goal IX is determined in comparison with other goals.

The second phase involves identification of current practice. Each subgoal is described as a set of behaviors that are observable. This is illustrated in Exhibit 44 using subgoal two

Exhibit 43: Illustrative Format
for Displaying Data on Means and Ranks

Goal	*Rank*	*Data on Current Conditions*	*Mean (5-point scale)*	*Rank*
Improve interpersonal relations among students	2	Desire for close friends at current age level	4.32	1
		Desire for close friends from another race	3.12	4
		Extent of out-of-school contacts	3.43	3
		Willingness to work in after school activities or project	4.10	2

for Goal IX. Data from the observations of current conditions can be compared with those for desired (goals) to determine the greatest areas of need.

In Pennsylvania, state norms for each of the goals are calculated so that local school districts can compare their results with state norms, as illustrated in Exhibit 45.

Note that there is not only a general description of the scale for Goal IX but also a stated criterion. These two basic subscales for Goal IX are described and sample items illustrated in Exhibit 45. Finally, student attitudes computed for the state norms are reported as SSSS graphs while local averages are reported as LLLLL graphs.

In reporting and interpreting information, it is extremely important to recognize the limits of data. For example, an instrument may be locally developed with unknown reliability and tenuous validity. After data derived from the instrument are analyzed and presented as tables, they may be interpreted as more valid than warranted. Recently, a steering committee made far-reaching decisions based on mean responses of a locally developed survey. One need was accepted as valid because it was rated 4.37 while another was not since it was rated only 4.31. The differences probably were statisti-

Exhibit 44: Relation of Analysis of Current Conditions to Goal IX in Pennsylvania Needs Assessment
Source: Bucks County Public Schools, 1971

	Area 2—SHOWS APPRECIATION FOR ACHIEVEMENTS OF OTHERS.	Never 1	Seldom 2	Usually 3	Often 4	Always 5
2.1	Admires a certain area of human achievement.	___ 1	___ 2	___ 3	___ 4	___ 5
2.2	Shows appreciation for nature or for an area of human achievement by attending an event, listening, reading, observing, or collecting.	___ 1	___ 2	___ 3	___ 4	___ 5
2.3	Makes a judgment or selects an activity, reading material, etc., based on how good it is.	___ 1	___ 2	___ 3	___ 4	___ 5
2.4	Shows appreciation for an area of human achievement by using the products and information of same.	___ 1	___ 2	___ 3	___ 4	___ 5
2.5	Brings materials to class that relate to topic of discussion, that will help in teaching, or that will increase class appreciation.	___ 1	___ 2	___ 3	___ 4	___ 5
2.6	Tells class about an event he went to, or an educational experience he had.	___ 1	___ 2	___ 3	___ 4	___ 5
2.7	Appreciates the opportunity to learn about a certain human achievement.	___ 1	___ 2	___ 3	___ 4	___ 5

cally not significant (although this was not tested), but, more importantly, they were not educationally different.

Prioritizing Needs

Discrepancies are categorized according to the magnitude of the gap between the goal and current status. One procedure for prioritizing needs was developed by Pol and Gale (Pol, 1976).

Exhibit 45: Illustrative Report Format for Data on Goal Achievement

Source: Pennsylvania State Department of Education, 1974, p. 54

III EQA SPRING, 1974 NAME = GR 5 ID = DATE RUN = 07/21/74III

GOAL IX — APPRECIATING HUMAN ACCOMPLISHMENTS

GENERAL SCALE DESCRIPTION

ITEMS MEASURE HOW MUCH VALUE STUDENTS PLACE ON HUMAN ACHIEVEMENT IN THE ARTS AND SCIENCES AND THE DEGREE TO WHICH THEY ARE WILLING TO RECEIVE STIMULI THAT THESE ENDEAVORS PROVIDE. THIRTY-EIGHT ITEMS INCLUDING LITERATURE, ART, ATHLETICS, GOVERNMENT, SCIENCES, MUSIC, ECOLOGY, AND DRAMA. SAMPLE VALUING ITEM: PEOPLE WHO PAINT PICTURES OFFER VERY LITTLE TO OUR WORLD. SAMPLE RECEIVING ITEM: I WOULD LIKE TO GO WITH A WATERWAY PATROLMAN TO SEE HOW HE KEEPS OUR STREAMS CLEAN. RESPONSE OPTIONS ARE (1) AGREE, (2) UNCERTAIN AND (3) DISAGREE.

CRITERION FOR FAVORABLE RESPONSE TO ITEMS

RESPONSE OPTION (1) IS CONSIDERED FAVORABLE TO ALL RECEIVING ITEMS AND TO THOSE VALUING ITEMS WHICH DESCRIBE ACTIVITIES IN ARTS, SCIENCES, ETC. IN A POSITIVE LIGHT. OPTION (3) IS FAVORABLE IN RESPONSE TO NEGATIVELY STATED VALUING ITEMS.

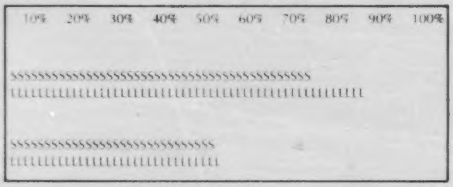
SUBSCALE DESCRIPTIONS AND SAMPLE ITEMS

VALUING: ATTACHING IMPORTANCE TO ACHIEVEMENTS IN THE ARTS AND SCIENCES AND VALUING ROLE PLAYED BY PEOPLE IN THESE AREAS—STORY WRITERS GIVE A GREAT DEAL TO OUR WORLD.

RECEIVING: WILLINGNESS TO LEARN MORE ABOUT ACHIEVEMENTS IN THE ARTS AND SCIENCES AND TO SEEK OUT EXPERIENCES WHICH PROVIDE FIRST-HAND INFORMATION ON WHAT PEOPLE IN THESE AREAS ARE DOING—I WOULD ENJOY WATCHING A TV PROGRAM ABOUT SCIENCE.

APPRECIATING HUMAN ACCOMPLISHMENTS PROFILE

STUDENTS DISPLAYING POSITIVE ATTITUDES ON SUBSCALES (IN PER CENT)



Referred to as the Quadrant Assessment Model, it compares ideal and real sets of expectations and perceptions for school principals. While the model was developed for a particular audience, it is applicable to other audiences and to other forms of data. Exhibit 46 illustrates and explains the model.

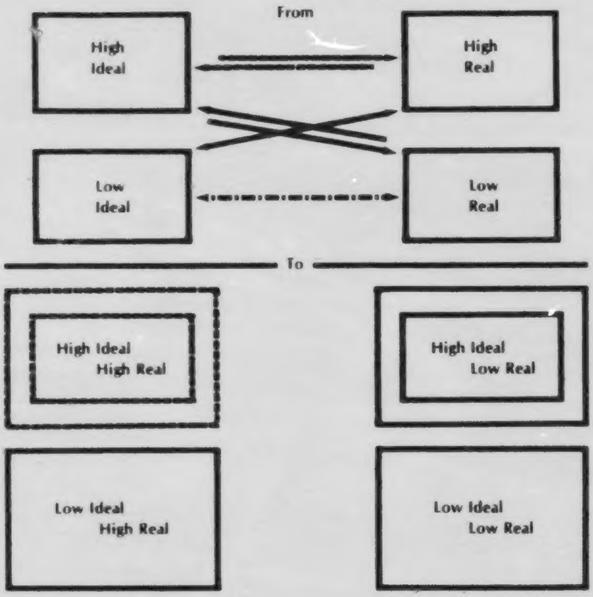
This process is intended to identify the more crucial areas needing attention. Hershkowitz (1972) derived a similar matrix from the needs algorithm. He dichotomized attainment data (current status) and importance data (ideal conditions) to derive a 2 × 2 matrix, as shown in Exhibit 47.

In the matrix, Cells B and D are classified as more important than Cells A and C. Likewise, Cells A and B include conditions with greater likelihood of attainment than do Cells C and D. The result of this interaction is that the entries in Cell D represent those areas needing most urgent action, while those in Cell A need less attention.

Herskowitz bases his classifications on the *mean* rating by

Exhibit 46: Quadrant Assessment Model

Source: Pol, 1976, p. 6



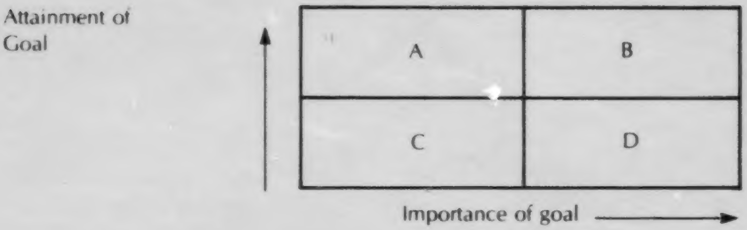
High Ideal — High Real Quadrant: Statements generated by this quadrant indicate that the components of competence described are important and highly expected. At the same time, it means that these components of competence are possessed by the principals and perceived as being practiced at a satisfactory level of performance.

High Ideal — Low Real Quadrant: This quadrant is called the "needs quadrant" because it generates statements that are an important part of the competence of the principal. However, they are perceived as inadequately performed or not possessed by the principals.

Low Ideal — High Real Quadrant: Statements generated in this quadrant indicate that the components of competence are of low importance. At the same time, it means that these components of competence are possessed by the principals and are perceived as being over-performed.

Low Ideal — Low Real Quadrant: Statements in this quadrant indicate that the components of competence described are of little importance and are not over performed; thus are practiced at low level infrequently, if at all.

Exhibit 47: 2 x 2 Matrix Displaying Goal Attainment and Goal Importance Data
Source: Hershkowitz, 1972



respondents. The New Jersey needs assessment system, on the other hand, uses a similar approach but bases its dichotomization not on means but on the *percentage of respondents* rating the scales.

Arguing against these approaches, English and Kaufman (1975, p. 14) cite the following example in making the point that the priority of *needs* should consider the priority of *goals* and should not be based solely on the magnitude of the discrepancy:

> There may be a 65 percent gap in students recognizing Beethoven's Fifth Symphony, and a 23 percent gap in students being able to read the editorial page of the *New York Times*. If the goal relating to basic skills was ranked higher than a goal calling for recognition and appreciation of great music, then the 23 percent gap must be addressed by the system and its resources first.

Using the same approach to prioritizing needs, Rookey (1975, p. 17) classifies goals as high, medium, or low in priority. He then subtracts current conditions from goal priorities to determine the discrepancy and utilizes a matrix similar to Exhibit 48. The statements in Cell A represent the greatest needs while those in Cell E are the least needs. The two B cells, the three C cells, and the two D cells are intermediately important needs.

Another approach is illustrated in Exhibit 49. Goals are weighted in terms of their probable increase in *utility* and

Exhibit 48: 3 x 3 Matrix Displaying Data on Discrepancy and Goal Priority
Source: Rookey, 1975, p. 17

Goal Priority	Discrepancy		
	High	Medium	Low
High	A	B	C
Medium	B	C	D
Low	C	D	E

importance. The format used in the exhibit displays the analyses for one goal.

In Exhibit 49, 80 percent of fifth graders achieved the criterion set for the goal. The needs assessment team estimated that 95 percent of students should be expected to achieve that level; thus, the probable increase in goal achievement was 15 percent (95 percent—80 percent). In a second part data collection, participants were asked to rate the importance of the goal on a five-point scale. This goal was rated 4.7. The goal's priority was calculated by multiplying 15% × 4.7 (.705.) This priority was highest for all goals and was ranked number 1.

A more complex system of prioritizing goals than previously described is illustrated in Exhibit 50. In addition to needs assessment data, information is collected on perceived accuracy of data, cost/effectiveness, interrelatedness with other goals or needs, criticality of need, and potential feasibil-

Exhibit 49: Format for Displaying Goal Utility and Priority Data

(1) Goal	(2) Current Performance Level	(3) Probable Increase in Utility	(4) Average Rated Importance	(5) Priority Value	(6) Rank
In May, 95 percent of fifth graders will read at 4.7 grade level or higher	80%	15%	4.7	.705	1

Exhibit 50: Six Rating Scales for Prioritizing Needs
Source: University of Florida, 1978

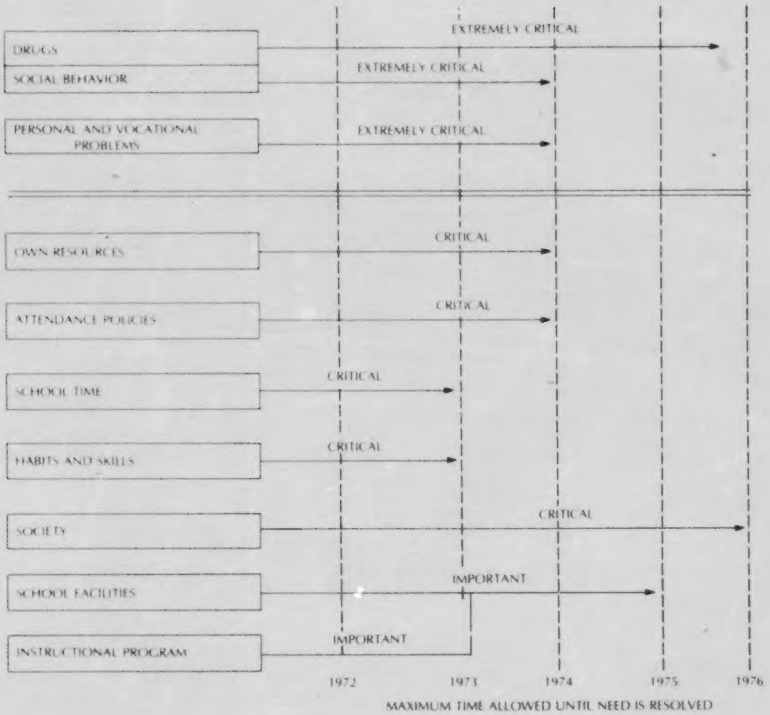
(4) High, to great extent, much	(3)	(2)	(1) Low, to limited degree, slight	
				(A) What is the *extent of gap* between the facts (what is) and the values (what ought to be)?
				(B) How *accurate (consistent with facts and values) is the analysis of this concern*
				(D) What degree of effectiveness (student benefit) for dollars spent is likely if this need is satisfied? *Cost/Effectiveness*
				(D) To what extent would the satisfying of this need aid the *satisfying of other needs* on the list?
				(D) In comparison to the other needs of children what is the *degree of criticality* of this need?
				(F) Considering time, cost, and other constraints, how *feasible* is satisfaction of this need?

ity of resulting plans. All ratings in Exhibit 50 are completed for each goal and are used in prioritizing needs. In some cases, the additional information permits needs assessors to make more rational and realistic decisions.

In 1972, the Ogden City School District completed a study of the critical needs of education in its schools (Drechel, 1972). Each of the needs was treated in three ways: "(1) a priority ranging from important to extremely critical, (2) a time limit by which the need was to be resolved, and (3) criteria or guidelines which had to be met in order to solve the need." The interaction of the two treatments is illustrated in Exhibit 51.

The Ogden approach suggests two important ideas to needs assessors. First, needs can be prioritized in a few categories for ease of communication (in this case, they are "extremely critical," "critical," and "important"). Second, not all needs can

Exhibit 51: Needs Prioritized by Criticality and Timelines
Source: Drechel, 1972


DRUGS
EXTREMELY CRITICAL
SOCIAL BEHAVIOR
EXTREMELY CRITICAL
PERSONAL AND VOCATIONAL PROBLEMS
EXTREMELY CRITICAL
OWN RESOURCES
CRITICAL
ATTENDANCE POLICIES
CRITICAL
SCHOOL TIME
CRITICAL
HABITS AND SKILLS
CRITICAL
SOCIETY
CRITICAL
SCHOOL FACILITIES
IMPORTANT
INSTRUCTIONAL PROGRAM
IMPORTANT
1972
1973
1974
1975
1976
MAXIMUM TIME ALLOWED UNTIL NEED IS RESOLVED

be attended to simultaneously. By determining a timeline within which each need can be met, there can be a more adequate followup.

The needs assessor should determine which of these approaches to use in listing critical needs in priority order. Once the decision has been made, a statement of needs (still factual, descriptive, and devoid of causal implication) should be made public and circulated among those who have shown previous interest in the program. The needs assessment then is ready to be applied to educational programs and implemented. These processes are considered in the next chapter.

Summary

To determine the extent of needs, goals are compared with current conditions. Reports should be organized to clarify differences and relationships. While different data require varied report formats, the following are useful: tables, charts, descriptive statements, and decision tables.

Priorities can be determined in a number of ways. Some result in 2 × 2 matrices in which level of attainment and importance of goals are dimensions. Others rely on complex calculations and formulas, considering utility of results, cost/effectiveness, feasibility, and optimal time required for attainment. Once priorities are established, factual statements of need form the basis for change efforts.

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Rookey, T. J. *Needs Assessment: Needs and Goals—Model: East Stroudsburg, Project NAMES Workbook*. East Stroudsburg State College, Pa.: Educational Development Center, 1975. (ERIC No. ED 106 989)

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7

Converting Priorities into Programs

Other chapters in this book focus directly on needs assessments. This chapter places needs assessment within the context of systemic change efforts. The purpose of needs assessment is not simply to collect data but to do so in order to make changes where they are needed. Only when change-oriented strategies are initiated and improvements are made does the real value of needs assessments become evident. The needs assessment encourages implementation based on *targeted actual needs* for institutions.

Needs assessments can be compared with the diagnosis of individuals. The diagnostic/prescriptive process is often advocated as a procedure for improving the learning of children and youth. Likewise, needs assessment/implementation processes are employed in changing institutions. Thus, needs assessment is analogous to diagnosis and serves similar functions.

In Chapter 1, eight steps in the systemic change process were outlined and are repeated in Exhibit 52. The first three steps are the needs assessment. The next three steps are implementation processes based on the needs assessment. Finally, program evaluation and revision conclude the cycle but also permeate all stages. While they appear to be linear, the eight steps are not. Needs assessment is an ongoing process; as implementation is undertaken, new demands for assessing needs emerge. When change strategists begin to rely on data, the demands for data and the dependence on it increase.

This chapter focuses on Steps 4, 5, and 6. Section One is

Exhibit 52: Steps in Systemic Change Process

Assess Needs	1. Formulation of Goals 2. Data Collection on Current Conditions 3. Needs Analysis
Develop and Implement	4. Specified Objectives That Are Based on Priority Needs 5. Strategy Development 6. Program Implementation
Evaluate and Revise	7. Program Evaluation 8. Revision

concerned with specifying objectives based on priority needs. Section Two suggests some ideas that could broaden strategy development, while the third section is concerned with implementation of change strategies based on the needs assessment.

Specifying Objectives

Determining What Could Be

The algorithm for assessing needs shown in Exhibit 53 has provided an organizer for this book. As needs are translated into objectives, three levels of objectives become evident: (a) *what might be,* (b) *what should be,* and (c) *what could be.* Understanding the distinctions among these three types of objectives aids in clarifying change strategies. As depicted in Exhibit 54, Rand and Stover (1973) proposed a schematic for comparing "what is" to an ultimate ideal system.

Exhibit 53: Needs Assessment Algorithm

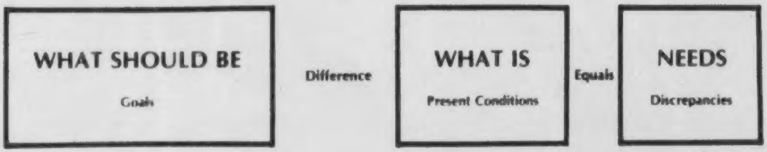
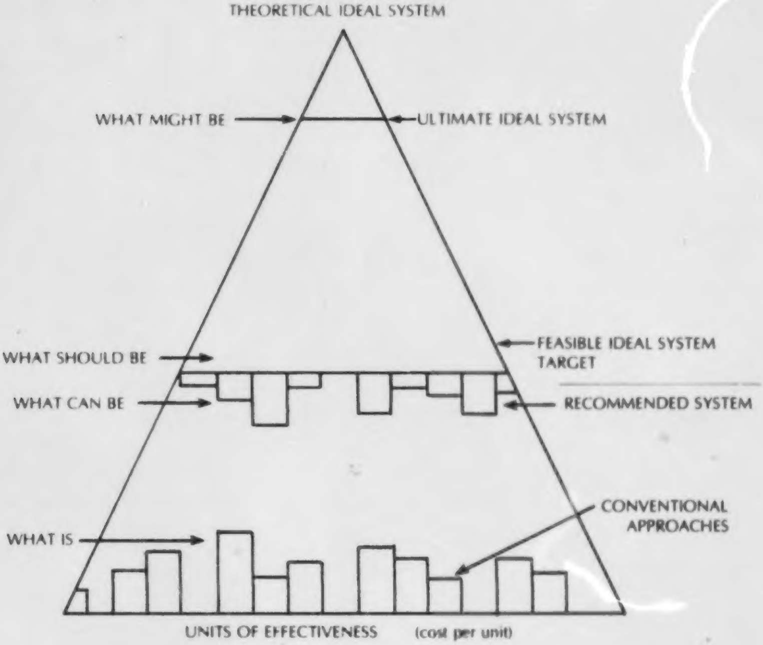


Exhibit 54: Conceptual Model Depicting Ideal/Reality-Based Levels for Goals
Source: Rand and Stover, 1973, p. 14


THEORETICAL IDEAL SYSTEM
WHAT MIGHT BE
ULTIMATE IDEAL SYSTEM
WHAT SHOULD BE
FEASIBLE IDEAL SYSTEM TARGET
WHAT CAN BE
RECOMMENDED SYSTEM
CONVENTIONAL APPROACHES
WHAT IS
UNITS OF EFFECTIVENESS (cost per unit)

At the pinnacle of Nadler's model is the Theoretical Ideal System, unobstructed by constraints and functioning under ideal conditions not found in reality. The second level, *What Might Be*, describes the ultimate ideal system as it might function in a real world under ideal circumstances. These are often the goal statements found in charters or articles of purpose and intent. They provide direction, but their targets are rarely attained.

The third level, *What Should Be*, describes a feasible ideal system. These statements also provide direction and are not typically achieved. They are within reach, are relatively specific, and can be related to actual conditions. Goal statements in the needs assessment process are typically stated at this level.

Schools and colleges operate under constraints, some of which are bound within themselves and can be modified; but others involve suprasystem constraints that limit attainment of goals. These may include such constraints as finances, resources or buildings, or population configurations. In effect, these limit the *What Should Be* to *What Can Be*. Analysis of them provides more realistic objectives.

The bottom level in Nadler's diagram, *What Is*, corresponds to the second part of the needs formula. It is an analysis of current conditions. The distance between these statements and *What Should Be* is theoretically the discrepancy or needs function. This is the formula used throughout this volume.

However, there is another discrepancy index that could be conjured; that is, the difference between *What Is* and *What Can Be*. In implementing programs, this realistic approach may lead to fewer frustrations and greater successes.

The Western Washington University Teacher Corps Project, reported by Hite *et al.* (1977), used this theoretical construct to illustrate the kinds of data collected during an inservice program planning process. Three levels—What Is?, What Should Be?, and What Could Be? (Nadler's What Can Be?)—provide an excellent illustration of how realities can be incorporated into the planning process. This illustration is shown in Exhibit 55.

Writing Objectives

Objectives are the *What Could Be* phase of the change process—the specification of realistic, obtainable outcomes. They are derived directly from needs and are designed to correct conditions that were identified through the needs assessment.

Because so much has been written about the techniques and processes for writing objectives, the topic is not considered here. Several criteria for assessing the value of objectives are listed. Needs assessment teams may wish to revise these to fit local conditions, then apply them to objectives. Each objective should:

1. **Be related directly to an identified need.**

2. Be realistic and obtainable.
3. Be short, clear, concise, and understandable.
4. Result in a successful resolution of needs.
5. Consider the magnitude of needs in determining extensiveness.
6. Relate to a single issue or program.

Developing Strategies

The strategies selected to achieve the previously identified objectives range widely in scope and impact. They may include curriculum design and development efforts, organizational reform, staff development, or resource allocation. Their

Exhibit 55: Planning Document
Illustrating Current Conditions
Compared with Ideal and Feasible Objectives
Source: Hite *et al.*, 1977, p. 5

WHAT IS?	WHAT SHOULD BE?	WHAT COULD BE?
Individual teachers select courses and activities	Activities should be directed at meeting identified student need	Student needs could be identified and an inservice program planned
District administration plans programs and requires and/or encourages participation	Programs should be planned by a team representing staff, district and delivering agency	Joint committee for inservice education could be established
Assessment of pupil needs is based upon formal and informal observations	There should be a systematic assessment of needs	There could be a systematic assessment of needs
College offers programs based upon intuitive perception of needs	Information on specific needs should be available to college faculty	Working relationship with college could be established
Progams mandated by State and federal legislation require additional training of staff	District should establish local programs	Required programs do not seem reasonable at this time
District funds for inservice education are limited	A minimum of 5% of the instructional budget should be allocated to staff development	Staff development could be established as a budget item

target may relate to a total school system, a school, or a small group of elementary pupils. Strategies may include only school officials or may involve social agencies, businesses, community organizations, or individuals outside the school. They may require special expertise and consultations or be devised, developed, and delivered by the school staff.

In selecting the most appropriate strategy, three questions are posed and answered:

1. What alternative strategies could be employed to achieve the objective?
2. What are the relative strengths and weaknesses of each potential strategy?
3. Which strategy seems most appropriate?

Each of these three stages is explored in the following sections.

Alternative Strategies

The first phase of strategy selection is to generate a wide array of potential strategies. Once the objective is specified, as many procedures as possible should be developed for attaining the objective. There should be interaction with other persons, particularly with those having a different background or perspective. In their desire to move rapidly, innovators often restrict their contacts to creative and supportive people. Such a posture often limits eventual effectiveness of change efforts.

Americans are often accused of "straightline solutions"; given a problem, there is a direct and related solution. Fredelle Maynard (1976, pp. 96–99) capsuled six techniques which might be considered when generating alternative strategies.

The first technique is *Change a Minus to a Plus.* When advertisers have a good product with an apparent drawback, such as a terrible-tasting mouthwash, they don't conceal the liability but exaggerate it and make it special. Maynard describes a 14-year-old New York girl whose father was transferred to England. The harder she tried to be like the English, the more they mimicked her accent and made fun of her. The girl's mother suggested she emphasize her individuality and foreign background by wearing T-shirts and jeans; that is, she changed a negative feature into a positive one and soon was the center of attention among her new English friends.

In *Reversal*, situations are turned around to make them advantageous. A driver on a narrow country road found the path blocked by slow-moving sheep. Rather than creeping the vehicle through the flock—and probably pushing the sheep ahead—the driver reversed the problem. By stopping, turning the sheep around, and driving them past the vehicle, the problem was solved.

In the *Redefinition* technique, the solution to a problem often depends upon how it is stated. The question of "how to build a better mousetrap" may be too narrow a focus. By a broader definition of "how to get rid of mice," a greater range of possibilities is opened. Conversely, the question may be modified from the specific to the general—"how to get rid of mice" to "how to build a better mousetrap."

Planning for Results is the fourth technique. The long-range results can be considered rather than the immediate ends. A family considering its tax refund might spend it for current desires or invest it toward a family objective desired in five or ten years. There are clearly two divergent ranges of options in such a situation.

Breaking Routines provides a fifth approach to solving problems. Routines that are taken for granted often lead to problems that can be avoided. An example described by Maynard (1976) was that of a family whose father worked from 4:00 p.m. to midnight. The mother was continually cooking because the main meal was in the evening when the children were home, but the father's meal was in mid-afternoon before going to work. In addition to the problem about cooking, the children never saw their dad. By breaking routine, the main meal was served in the morning—the mother cooked for only one major setting, and the family enjoyed more time together.

Brainstorming generates many ideas quickly. Following the problem statement, all group members spill out ideas—wacky, funny, far out—in accordance with four prevailing rules. No criticism or evaluation is allowed, participants are encouraged to be uninhibited in their thinking, quantity is emphasized rather than quality, and participants are urged to build on or modify others' ideas. Regardless of the process employed, the result of this step is a set of alternative strategies for achieving the objectives.

Resource and Constraint Assessment

In this step, each of the alternative strategies is analyzed to determine its strengths and weaknesses, its advantages and disadvantages, its positive and negative aspects. In logically organizing the analysis for more objective consideration, a table such as Exhibit 56 may be of value. This approach is similar to and based on Force Field Analysis, described in Chapter 9.

Exhibit 56: Strategy Assessment System

STRATEGY:

Strengths of strategy Advantages of strategy Positive features of strategy	Weaknesses of strategy Disadvantages of strategy Negative features of strategy
1.	1.
2.	2.
3.	3.
4.	4.

Prior to selecting a strategy, three further considerations may facilitate the process. First, one can speculate on the impact of the strategy on each of the needs assessment targets—people, programs, and organizations. Such a process can broaden perspective and stimulate ideas about other positive and negative attributes that could contribute to the success of the strategy. For example, by analyzing negative factors, needs assessors may be able to change some aspect that could transform the negative force into a positive force.

Second, the risk factor should be calculated for each proposed strategy. Risk should be considered from two views—if the strategy is adopted and if the strategy is not adopted. For students involved in a new experimental venture, what are the risks involved? What are its long-term psychological and educational legacies? What are its chances of success? What are its effects on existing programs?

The third consideration is an analyses of resource allocations. Brieve *et al.* (1973, pp. 62–63), identified three categories which affect decisions about most strategies. The first is *costs*, including personnel, materials, equipment, and facilities. The second category is *time*—both for development and implementation. Time can be considered in terms of actual time devoted to the strategy or in terms of the lapses from the time the strategy is conceived until it is completed. The third category is *socio-psychological* and includes such considerations as social acceptance, the interest a strategy might generate, and its general political feasibility. As an example of how this third consideration may be applied, a strategy could be potentially effective but could cost too much, take too long, or unfavorably affect the political climate of the schools.

Finally, a word about constraints—"*they won't let us*" is not acceptable. *Too many great ideas have been swept away by this phase.* "They" get blamed for too many failures to act. Sometimes "they" are identified—and "they" are *always* in authority. They are Washington, the community, the central office—but as Pogo said, "We have seen the enemy, and they is US." Too often, "we" need to solve the problem. Too often swimmers turn away from the sea before the smell of salt water is in their nostrils, and implementers turn from a unique and viable process before it has been adequately explored.

Other blocking statements should also be questioned: "We've always done it this way." "The community expects the schools to______________," "The ideas can't be sold." It is beyond the scope of this committee." When such statements are considered rigid and final, many useful alternative strategies never surface.

Selecting Appropriate Strategy

The generation of alternative strategies is an analytic process, but selecting from among the alternatives is a *political* process. The latter may be referred to as a combination of systematic evaluation and artful judgement. One of the myths of education is that evaluation leads to objective (value-free) decisions. Such a myth is particularly destructive in education when it clouds human judgements with pseudo-scientific, pseudo-objective assessments. A junior high school music teacher gave a student with an average of 89.4 a B but would have assigned the student an A if it had been 89.5 (which rounds up to 90). The teachers' actions inferred that the criteria were so precise that 1 part in 1000 made the difference. Perhaps the teacher was avoiding professional decisions by using numbers and pseudo-scientific evaluation.

Since decisioning is a human endeavor, involving those who are concerned in making the decision is an effective strategy.

This should not be a one time involvement. As alternative strategies are generated, affected parties should be continually involved in the process. As positive and negative features of each strategy are projected, those affected should be involved. The strategy employed is more likely to be effective when input from significant people is sought; not only is the increased range of ideas likely to improve the quality of the strategy selected, but support for the outcome is more likely.

Implementing the Program

This is the action step derived from all previous efforts. Needs assessments count for naught if they do not lead toward action-oriented programs. Planning is negated if it does not lead toward change-oriented strategies. As noted previously, it is important to recognize that all previous stages in the change process are empty without implementation.

Needs assessment is not a one-time process; neither is implementation. Implementation strategies are planned, tried, evaluated, revised, and tried again. Their outcomes may result in changed objectives or goals, and they may lead to modified statements of needs.

Two other stages, evaluation and revision, are included in the systemic process. While not emphasized here, they are integral to the success of the change-oriented effort. The purpose of this book is to stimulate a more valid assessment of needs which should lead to more effective implementation and thus to more effective education of children and youth.

Summary

Needs assessment is the initial phase of viable change. Objectives of change are derived from specific needs, and implementation strategies relate to those objectives. The entire process is monitored and refined by evaluation and revision stages.

Needs assessment is not a process that is completed at the beginning of change efforts and never repeated but is a continual effort embedded in other stages of the process. Needs assessment not only defines what occurs in these stages but is shaped by them.

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SECTION II

Resources Supporting the Process

8

Analyzing Models of Needs Assessment

A wide array of models and systems has been developed for conducting needs assessment studies; some are commercially available while others can be found in the literature, particularly in the ERIC system. A few are relatively comprehensive, while others are called models of needs assessment simply and solely because their authors choose to do so. While several needs assessment systems are used widely, no one system can be considered a panacea or the "best."

Existing systems tend to share the same general characteristics and conceptual frame; major differences tend to be in the sequence of specificity of events. Some emphasize one phase or one process while others are designed for special purposes. Another noticeable aspect of the differing systems is an expected range of terminology describing virtually the same concept (e.g., the naming of groups as advisory boards, task forces, steering committees, or charettes). Existing models of needs assessment function most effectively as springboards for the development of an approach appropriate to particular local situations. Ideas may be extracted from existing materials that fit specific applications.

Using the principles of needs assessment and drawing from existing sytems and the staff's creativity will likely result in a more satisfactory study than will a lock-step application of someone else's system. The key to successful needs assessment is in the systematic evaluation of the local situation.

Models of Needs Assessment

Models of needs assessment can be classified as one of six types, depending on their relationship to a six-step systemic planning cycle (Kaufman, 1977). Such a classification implies that an institution can perform a needs assessment starting at any point in the systematic planning cycle—(1) identification of problems based upon needs, (2) determination of solution requirements and identification of solution alternatives, (3) selection of solution strategies from among alternatives, (4) implementation, (5) determination of performance effectivenss, and (6) revision.

Kaufman (1977, p. 63) identified needs assessment types with Greek-letter designations, Alpha through Zeta, corresponding to the six-stage systems approach. Most of the following examples of needs assessment models fall into Alpha and Beta types, according to Kaufman's taxonomy (the first two phases of the planning cycle listed above). They are intended to be illustrative of the available needs assessment systems.

Examples of their reports, manuals, and other documents are provided in other chapters. Sources for more information on each model are listed at the end of each capsule.

Needs assessment models have reflected a wide range of concerns and scopes. Designed as a process for unifying federal grants, the *TREND* model was developed to be used by school districts concerned with improving the educational opportunities of children from low-income homes. A number of school districts modified it and used the basic concepts in their own programs. The *Phi Delta Kappa* model was first developed in northern California, then marketed by PDK. Comprehensive in scope, the PDK kit includes materials for conducting an assessment. The *Worldwide* model is another example of a comprehensive system. *The Houston Needs Assessment System* was designed for a cluster of schools beginning a renewal process. Developed as part of the Texas Center for Improvement of Educational Systems, HNAS focused on student curricular needs as well as on those for professional inservice education.

The *Center for the Study of Evaluation* developed a KIT for use in needs assessment after commercially available achievement tests were analyzed in terms of their salient concepts. *Educational Systems Associates* also developed a commercially available manual for needs assessment. The *Job Analysis Model* (Florida Community Colleges) and the model developed by the *Bureau for Education of the Handicapped* (BEH) are examples of targeted needs assessment systems. Each of these systems is discussed briefly in the following section.

Targeting Resources for the Educational Needs of the Disadvantaged

The TREND needs assessment model was first developed for use in federal programs aimed at disadvantaged youth. It has been successfully used in diverse locations, and the process has been used beyond its original purpose in general needs assessments.

Identification. The TREND process consists of seven interrelated tasks based on the community-wide structure of parent/youth expertise and involvement, systematic planning and implementation procedures, locally developed goals and priorities, and a programming-budgeting structure which matches resources with specific program objectives.

Scope. Although TREND is designed for use in district-wide needs assessment studies, the model is applicable for use in a smaller setting, such as a single school or a cluster of schools.

Purpose. TREND was developed as a reflection of a heightening awareness that total community involvement is a prerequisite of successful program innovation. Its acronomic title acknowledges the movement toward community involvement and the subsequent targeting of resources in that direction. According to Kuuskraa (1971), TREND ensures:

1. An identification of the major gaps between desired level of performance and actual performance;
2. An understanding of the underlying problems and causes why a child is not developing rather than a mere listing of symptoms;
3. An evaluation of the major child development gaps that should be corrected; and

4. A determination of the likelihood of success in correcting a deficiency under reasonable assumptions as to current program development, availability of resources, and time or personnel demands.

Model Design

An overview of the ten-step comprehensive planning process reflects its purpose, which is to consolidate funding into a single comprehensive document.

Step 1, *Conducting the Management Review*, generates a grant porposal (not applicable to all needs assessment studies), a work plan for the planning phase of the project, and a technical assistance plan.

The purpose of Step 2, *Establishing a Community Planning Task Force*, provides community, agency, and school administration input to the needs assessment planners. Community participation is insured with creation of the task force or advisory body.

Conducting a Child-Centered Needs Assessment is Step 3. Overall goals are related to individual children with the identification of their social, physical, emotional, and educational needs.

Step 4, *Conducting the Program and Resources Review*, results in identification and analysis of the ways school resources are currently used in providing services to children in target schools. A systematic document is produced showing funding sources, goals, costs, and outcomes of the current educational program.

Step, 5, *Setting Priorities*, is designed to incorporate analytic data with human value judgements in the process of allocating scarce resources. It results in a listing of program areas which call for new or increased attention.

Resources Are Mobilized in Step 6 to organize human and fiscal factors to meet the demands of the new or expanded programs. The procedure results in the determination of new sources of funding and staffing.

Program Design is the translation of priority needs into an action plan designed to meet the needs. The purpose of Step 7 is logically to group objectives, resources, and time requirements into a series of programs which complement each other while meeting the stated needs.

Determining the *Program Budget* is Step 8, translating operational requirements and expectations into budget figures. The task establishes cost-versus-benefits statements for particular programs.

The *Comprehensive Plan*, Step 9, integrates the current and new programs with other community-wide child development services, resulting in a single plan for the educational and developmental efforts of the school system.

To end the TREND planning process, Step 10 produces a *Consolidated Grant Application* and establishes a single funding document and application for state or federal funds.

Evaluation

As a planning process, TREND can be applied to general needs assessments if modified to local situations. A needs assessment is not necessarily linked to an application for funds, but TREND's attention to the financial aspects of program planning is one of its strengths. Rather than being an inclusive guide to conducting a needs assessment study, TREND should be considered as an historically significant model which stresses child-centeredness and community-wide involvement. While there is not a specific manual of instructions, there are several descriptions of steps and assessments using TREND.

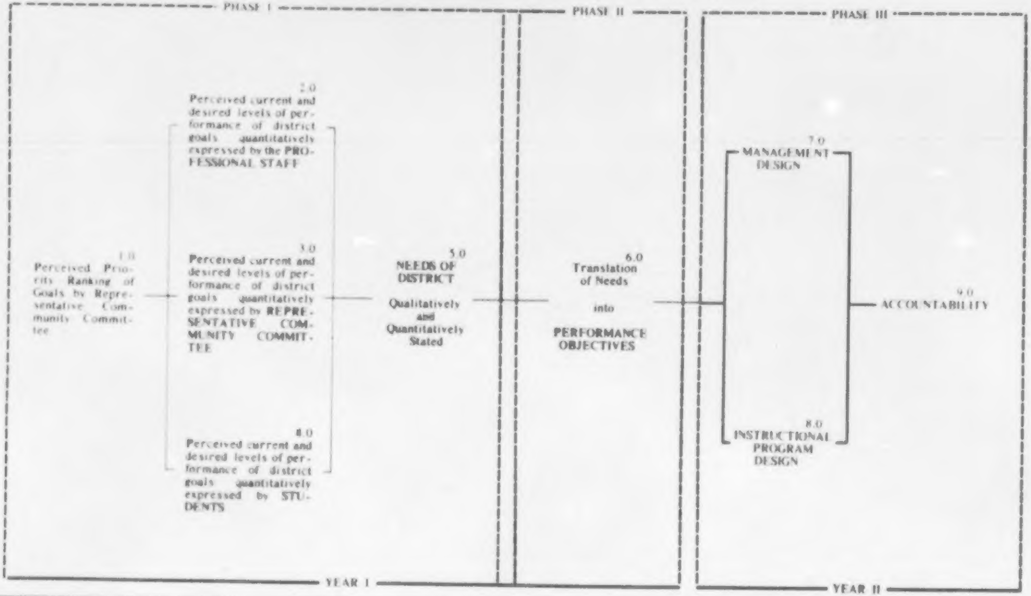
Phi Delta Kappa Model Program for Community and Professional Involvement

The Program Development Center of northern California developed its Educational Planning Model early in the 1970's, and it has been disseminated by Phi Delta Kappa to numerous school districts throughout the nation and in foreign countries. By 1974, the PDK materials had been used by more than 360,000 persons involved in education, and more than 4,000 school districts had received materials in the planning kit.

Identification. The Phi Delta Kappa Educational Planning Model is a comprehensive system in which measurement of needs forms two of ten steps in a continuous process. The

Exhibit 57: Phi Delta Kappa Educational Planning Model
Source: Phi Delta Kappa

EDUCATIONAL GOALS AND OBJECTIVES
A Model Program for Community and Professional Involvement


PHASE I
PHASE II
PHASE III
1.0 Perceived Priority Ranking of Goals by Representative Community Committee
2.0 Perceived current and desired levels of performance of district goals quantitatively expressed by the PROFESSIONAL STAFF
3.0 Perceived current and desired levels of performance of district goals quantitatively expressed by REPRESENTATIVE COMMUNITY COMMITTEE
4.0 Perceived current and desired levels of performance of district goals quantitatively expressed by STUDENTS
5.0 NEEDS OF DISTRICT
Qualitatively and Quantitatively Stated
6.0 Translation of Needs into PERFORMANCE OBJECTIVES
7.0 MANAGEMENT DESIGN
8.0 INSTRUCTIONAL PROGRAM DESIGN
9.0 ACCOUNTABILITY
YEAR I
YEAR II

planning kit comes with administrator's manuals, instructions in writing performance objectives, and goal-ranking materials.

Scope. The PDK system is basically intended for district-wide use, but it can be modified for smaller situations as well as for larger ones. Its wide use testifies to its durability and adaptability in many settings.

Purpose. The purpose of the PDK planning model is to provide information for the continual improvement of evaluative techniques by educational decision-makers.

Model Design

A number of identifiable tasks may be gleaned from the materials associated with the PDK system, but there are ten major steps divided into three distinct phases. Rose *et al.* (p. vii) illustrated the Phi Delta Kappa Educational Planning Model, shown in Exhibit 57.

Phase I of the PDK system is divided into procedures associated with (1) *Prioritization of Goals* and (2) *Assessment of Perceived Needs.* During these steps, community advisory committees are formed and a goal ranking/rating strategy is implemented. A set of markers is used to allow referent groups to prioritize eighteen goals. (The goals and the strategies for involvement are discussed in other chapters of this manual.) In the PDK schematic, the administration of the goal setting instruments results in prioritization, and clerical procedures result in analysis of participant perceptions.

Phase II — *Performance Objectives Design* and production of a *Goals-Objectives Matrix* follow the tallying of perceived needs. Two booklets on the writing of performance objectives are included in the PDK kit. Phase II results in objectives which conform to generally ascribed qualities of performance or behavioral objectives.

Phase III begins with *Analysis of Resource Allocations,* described by Rose *et al.* (p. 3) as "an analysis of the way in which a major share (over 90% typically) of the school system's funds are being expended: salaries of personnel, fringe benefits extended to personnel, plant operation and maintenance, transportation of students, and food services."

The next step, *Preliminary Identification of Target Goals* follows the steps in Phase I—prioritization of goals and assessment of perceptions. The PDK manual illustrates two examples of target-setting procedures (Rose *et al.*, pp. 25–36).

In PDK's terminology, an *Expanded Needs Assessment* follows preliminary targeting to accumulate data from various surveys, school records, and demographic or public sources. When such information is combined with the results of the performance objectives design, the final *Identification of Target Goals* is made. Rose *et al.* (p. 43) write that "for each potential target goal, district personnel will have identified (1) prioritization data, (2) perceptions of related program performance, (3) relevant objective and supportive data, and (4) statements of indicated needs."

Instructional Program Design determines the various strategies for delivery of the curriculum, and the *Management Design for the Instructional Program* outlines the organizational strategies for implementing the teaching materials. *Evaluation and Recycling* completes the PDK model.

The Workshop Packet

The Phi Delta Kappa packet includes:

A comprehensive manual which covers all three phases, or
Educational Goals and Objectives; A Model Program for Community and Professional Involvement (Phase I & II Administrator's Manual)
Phase III of the Educational Planning Model; A Program for Community and Professional Involvement
A Programmed Course for the Writing of Performance Objectives
Writing Performance Objectives; Instructor's Manual for Teachers and Administrators
Various goal forms and directions—including goal selection instruments in Spanish.

Source. Phi Delta Kappa, Inc., Eighth and Union, Box 789, Bloomington, IN 47401.

The Worldwide Needs Assessment Model

The Worldwide Model was developed by the Worldwide Education and Renewal Institute of Salt Lake City in conjunction with state agencies and districts in five states.

Identification. Descriptions of the model are available in several sources, one of which is a procedural manual for career guidance studies (Timmins, 1974). The model includes seventeen activities which ensure committee involvement in the needs assessment cycle as well as participation of constituent groups.

Scope. The Worldwide Model is applicable to any school setting for conducting a comprehensive needs assessment.

Purpose. The Worldwide Model may be construed as a set of procedures that, according to Timmins (1974, p. 19), allow planners to derive:

1. Identification of the critical educational needs of the region;
2. Categorization of these needs in terms of their priority (or criticality);
3. The expressed values—or statements of belief—that the committee can agree upon; and
4. A summary of suggestions made by the committee for resolving the educational needs that have been identified.

Model Design

Activity 1.0 of the Worldwide Model is the *Appointment of a Quality Assurance* Committee, analogous to steering committees and task groups in other systems.

Activity 2.0, *Orientation of the Quality Assurance Committee to the Total* Task, assures that participants are aware of their responsibilities and functions.

The Review of Goal Statements for Adequacy (3.0) assesses tentative goals from other sources or those developed locally.

The planning function is critical to successful implementation of the World-wide Model, and Activity 4.0 is the *Development of a Tentative Schedule of Activities.* Activity 5.0, *Conducting of Surveys of Opinion,* is linked to Activity 6.0, *Summarization of Test and Measurement Data.*

The succeeding steps use terminology unique to the Worldwide Model. Activity 7.0 is a *Concerns Conference* and Activity 8.0 is the *Sponsoring of Speak-Ups.* The Concerns Conference is similar to Community Awareness Conferences suggested in other models, but the sequencing follows the collection of data instead of preceding it. The Concerns Conference is defined as "an organized attempt to identify (unsolved) problems . . . that are currently emerging or likely to arise out of the trends that may be observed. It is a way to systematically tap the ideas and perceptions of a great number of people in a very short time" (Timmins, 1974), p. 18).

Speak-Ups are identified as student expressions of their own educational priorities. By conducting meetings away from their own teachers and building administrators, it is possible for students to "represent the uninhibited identification of needs by those who are the recipients of the educational process" (Timmins, 1974, p. 18).

Activity 9.0 is the *Summary of Administrative Data and Evaluations* and Activity 10.0 is the *Classification of Concerns* (analogous to goals in other models). Activity 11.0 is the *Appointment of Needs Assessment Committees* (different from other models which tend to appoint one representative group for the entire process).

Documenting Concerns with Facts and Policies (12.0) places the goals in the context of the existing situational constraints, and Activity 13.0, *Conducting a Concerns Analysis*, results in a prioritizing of needs.

Concluding steps include the *Publication of Statements of Critical Needs* (14.0); *Publication of an Operational Philosophy from the Agreed-Upon Value Statements* (15.0); *Outlining of Next Steps for Resolving the Critical Needs* (16.0); and *Publication of a Revised Statement of Goals and Objectives* (17.0)

Source. Worldwide Education and Research Institute, 2315 Stringham Avenue, Salt Lake City, UT 84109.

Houston Needs Assessment System

Developed by the University of Houston in conjunction with the Texas Center for the Improvement of Educational Systems (Texas Education Agency), the Houston Needs Assessment System was tested in six school districts during 1972–73.

Identification

HNAS is a ten-phase, step-by-step approach to the total process of a needs assessment study. Beginning with a specific commitment to initiate the process, it progresses through a complete study and concludes with recycling procedures.

The basic assumptions of HNAS justify the conduct of a needs assessment (Houston and Bain, 1972, p. 11):

1. There is a real commitment to an assessment of priority needs. Key people in the community and in the schools are committed to and support the effort. Schools are willing to provide resources for completing the needs assessment. Outcomes of the needs assessment will be used as a basis for decision-making in reformulating and restructuring the school programs, teacher inservice and administrator inservice.
2. People are meaningfully involved. Significant numbers of people representing the various constituent populations are involved both in expressing opinions and in providing input in the decision-making process.
3. Data analysis represents the intent of the respondents. All referent groups in the community have an opportunity to express their feelings; instruments used in the study are valid; subsequent interpretation reflects the original intent of the respondents.
4. Diverse referent groups exist in the target area. These groups' orientations, perceptions, hopes, and fears are divergent, and the needs assessment process recognizes and copes with this diversity.
5. Both compromise and consensus characterize the decisions made. True parity with unanimous consensus is improbable. Therefore the model relies on compromise rather than true parity.
6. A "blank paper charge only" should not be used in eliciting responses. Individuals can validly voice their priorities through well-developed instruments without locking them into rigid, unalterable choices.
7. Samples of behavior and opinion reflect that of the total group. When perceptions and opinions of respondents are tapped using stratified random sampling techniques, they will reflect the responses which would have been elicited had the total group been surveyed.
8. Teacher and administrator competencies can be identified and improved. Those which need to be improved can be differentiated from the others.
9. Schools are committed to improved education through planned program design and inservice education.
10. Needs assessment is a continual regenerative process.

Scope. HNAS is designed for use in an individual school or in a cluster of schools such as a high school and its feeder elementary, junior high, or middle schools. It is applicable to the diverse range of cultural and socio-economic backgrounds found in the typical school system.

Purpose. The purpose of HNAS is to identify student needs and professional personnel needs through a study which involves the total community as well as administrators, teachers, and students; changes in the curriculum of the school and the inservice education of professional educators are outcomes of the needs assessment.

Model Design

The phases of the HNAS are written for use in the specialized requirements of a Teacher Center. As modified for potential Teacher Corps users, the system would adjust to the particular requirements of a project.

Step 1 includes procedures for obtaining a *Commitment to an Assessment of Needs.* However the project has been initiated, by mandate or local impetus, a given agency will have reached formative stages of the decisioning process to conduct a needs assessment study. HNAS outlines procedures for achieving commitment from constituent groups. Among the sub-steps are awareness, organization of the project team, meetings to initiate the project.

The selection of a *Project Coordinator, Steering Committee, and Target Area* is the task outlined in Step 2 of HNAS. In a Teacher Corps project, the target area would be defined by the project. Included in HNAS are guidelines for selection of a project steering committee and a sample meeting agenda.

The Training of the Local Steering Committee constitutes Step 3 of HNAS, with sub-steps ranging from selection of the local committee chairperson to determining the agenda and activities for specific public and committee meetings. One section discusses potential problems.

Step 4 is an *Assessment of Perceived Program Needs.* Within the HNAS guidebook are suggestions for selecting respondent groups and instruments, administering the instruments, and analyzing the data.

Measuring the Outputs of Present Programs is Step 5 of HNAS. The guidebook discusses how to use standardized tests with other instruments in assessing current conditions of programs.

In Step 6, *Identification of New Program Priorities*, discrepancies between perceived needs and present outcomes are listed and priority needs and program emphases stated. Suggestions and guidelines are included for determining discrepancies.

Step 7 refers to *Support of the Professional Staff* and could assist other needs assessors in identifying teaching and administrative competencies appropriate to the local situation. Ten procedures are listed for a review of competency analysis.

The *Relating of Teacher Competencies to Program Priorities* is Step 8 and portrays a systematic way of relating professional personnel needs to program objectives.

Step 9 outlines the means of *Data Presentation to Decision Makers* and *Community Referent Groups* to insure the widest possible dissemination of needs assessment information.

The model is completed with Step 10, a plan for *Continuous, Regenerative Assessment of Educational Needs*. HNAS stresses the recycling of the process as an ongoing necessity.

Source. Professional Development Center, College of Education, University of Houston, Houston, TX, 77004.

The CSE Elementary School Evaluation KIT: Needs Assessment

The CSE KIT was developed by the Center for the Study of Evaluation at the University of California at Los Angeles. It has been extensively field-tested nationally and is commercially available.

Identification. The KIT is a self-instructional approach to needs assessment that guides a school principal step-by-step through its five booklets and other supporting materials. A set of 106 goals is reproduced on sorting cards to be prioritized on rating mats or through use of a questionnaire.

The needs assessment KIT is the first of a set of five units for school evaluation developed by the Center for the Study of Evaluation. In addition to Needs Assessment, the system includes Program Planning, Implementation, Evaluation, Progress Evaluation, and Outcome Evaluation.

Scope. The CSE KIT was designed primarily for use in elementary schools but has been more widely applied. The KIT is designed to be utilized without a highly-trained staff.

Purpose. CSE endeavors to help principals answer questions about specific goals for their school how progress toward meeting the goals can be assessed, how communication of appropriate data can facilitate decisions, and how policy can allow for differences in constituencies' values (Hoepfner *et al.*, 1972, p. xii).

System Design

The guidebook enclosed with the CSE KIT (Hoepfner *et al.*, 1972) outlines the design of the system. Chapter 1, *The Nature and Scope of the Evaluation Kit*, describes the nature of evaluation from the perspective of CSE. Background information is given about the rationale for development of the KIT, and further information outlines the remainder of the guidebook.

Choosing Goals, the subject of Chapter 2, outlines two methods of selecting goals. In one, respondents independently rate goal statements while in the second, groups are charged with this responsibility. Procedures are described for selecting raters through random and stratified random sampling. Sample letters to participants are included in the guidebook.

Chapter 3, *Selecting Tests*, discusses the selection and review of standardized testing instruments. The MEAN test review procedure (Hoepfner *et al.*, 1972, p. 41) is utilized. M-E-A-N is an acronym for recommended criteria for assessing tests: Measurement validity, Examinee appropriateness, Administrative usability; and Normed technical excellence. A number of elementary test batteries are analyzed using this system.

The chapter on *Collecting Information* (4) gives information on ordering tests, various types of tests (e.g., essay, true-false), and scoring services. It also discusses test administration, sampling procedures, and the use of norms.

Selecting Critical Need Area, Chapter 5, outlines the use of the KIT and discusses a comprehensive decision model and rule which is a transition from needs assessment to program planning. Basically, priority values are computed for educational goals, and the goals are implemented in the areas with the highest priority.

Source. Center for the Study of Evaluation, University of California at Los Angeles, Los Angeles, CA, 90024.

Educational Systems Associates Needs Assessment System

The Educational Systems Associates (ESA) needs assessment system was developed in Austin, Texas, in the early 1970's and is commercially available.

Identification. The ESA approach to needs assessment is through a four-phase process which encompasses various sub-activities. ESA publishes a concise manual (1974) which introduces the concept of needs assessment and outlines procedures necessary to carry out a study.

Purpose. The ESA system manual (1974, p. 2) is designed to "describe the procedures which should be considered in planning a comprehensive needs assessment study. It was designed to aid administrators in conceptualizing the tasks which need to be accomplished and formulating their plans for conducting such a study."

Model Design

The four phases of the ESA system are (1) Planning, (2) Identification of Perceived Needs, (3) Identification of Learner Needs and Administrative/Support Needs, and (4) Identification of Resource Needs (Educational Systems Associates, 1974).

Phase 1 includes selection of a coordinator, training and orientation, establishment of committees, and definition of a time schedule.

Phase 2 established procedures for the development of process and learner-oriented goals or concerns. Several instruments are listed and suggestions made for the identification of goals.

Phase 3 refers to the development of objectives, and Phase 4 is concerned with the allocation of resources.

Source. Bruce H. Read, Educational Systems Associates, 3445 Executive Center, Austin, TX, 78752.

Job Analysis Model, Florida Community College Needs Assessment Model

The Job Analysis Model (Phillips and Tucker, 1975) was designed to assist community colleges in Florida in anticipating and meeting the demands for manpower training programs. It was developed in 1972 by the Central Florida Needs Assessment Consortium, composed of seven community colleges and two universities.

Identification. Fourteen steps and seven correlated procedures constitute the Job Analysis Model (JAM). It is an example of a targeted needs assessment process which begins with generic institutional goals rather than with a perception of constituents or a revision of goals which accompany the model.

Scope. As designed, the model is most applicable to community colleges, but it can be modified to fit any level of educational institution. Nine phases are specified in the development of the model (Phillips and Tucker, 1975):

1. General model design
2. Data collection and screening of available information
3. Processing and synthesis of data collected
4. Development of the detailed model procedure based on findings
5. Selection of prototype; pilot and test of model
6. Development of relevant data tables for curriculum decisions; evaluation and refinement of the model
7. Implementation of the model procedure
8. Provision of continuous data on assessed needs for planning
9. Continuation of evaluation and revision of the model

Purpose. The goal of the Job Analysis Model is to provide a "statewide system useful to educators, manpower specialists, and any planner concerned with the supply of trained persons or demand for training services" (Phillips and Tucker, 1975, p. 5).

Model Design

According to Phillips and Tucker (1972, p. 2), the Job

Analysis Model "works on the principle that data already being collected on a continuous basis is far superior to the development of a (local) survey procedure."

Step 1 of the model is a reaction to the *Legal Charge* to conduct a needs assessment project. The charge might take the form of either a mandate or a prior administrative decision.

Determination of Community Employer Needs, Step 2, is constituted of statistics and a separate survey. This phase of data collection is then compared with institutional or generic goals to form Step 3, *Limitation of Needs to Those Within Goals*. An adjunct to this step is the clarification of institutional goals in terms of obligations and objectives.

Employment Needs are Ranked in Step 4, and *Present Programs are Ranked* in Step 5. A survey is also taken to evaluate courses in programs within the institution. The two steps are followed with a step which *Shows Priority Differences Between Employment and College Offerings* (6).

After differences are determined, steps are taken to *Show Numbers in Each Program Versus Numbers Needed in Each Program* (7) and to *List Programs Needed, Numbers, and Dollars to Change, Assuming 1:1 Supply:Demand* (8).

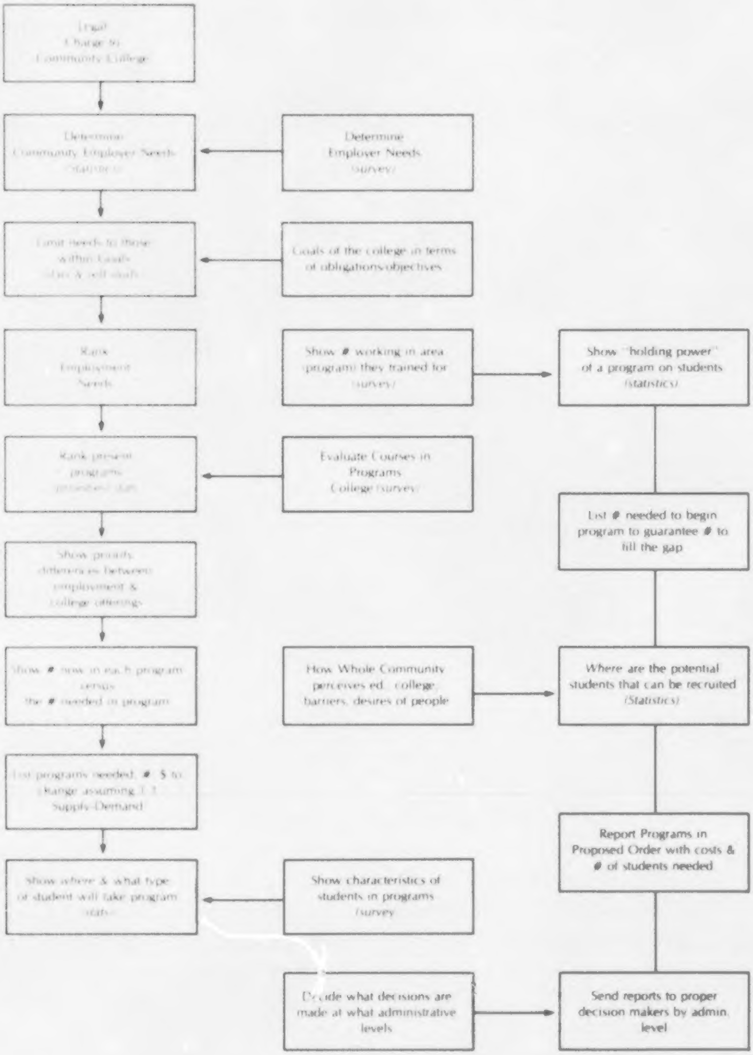
Statistics and surveys depict student characteristics and *Show Where and What Type of Student Will Take* (a particular) *Program* (9). Likewise, Step 10 uses statistics and surveys to show follow-up information on ex-students working in the area they were trained for or to *Show Holding Power of a Program on Students*. Step 11 includes *Numbers Needed to Begin a Program to Guarantee Numbers to Fill the Gap*.

Perceptions of the community and others interested in education are used to determine *Where Potentially Recruited Students Are* (12). At that point, *Programs are Reported in a Proposed Order with Costs and Numbers of Students Needed* (13). The concluding step (14) is in the determination of decisions and the *Sending of Reports to Proper Decision-Makers*. Exhibit 58 illustrates the model in schematic form (Phillips and Tucker, 1972, p. 10–11):

Source. Center for Community College Needs Assessment, 1212 SW Fifth Street #8, Gainesville, FL, 32601.

Exhibit 58: Job Analysis Needs Assessment Model

Source: Phillips and Tucker, 1975


Legal
Charge to
Community College
Determine
Community Employer Needs
(statistics)
Determine
Employer Needs
(survey)
Limit needs to those
within Goals
(stats & self study)
Goals of the college in terms
of obligations/objectives
Rank
Employment
Needs
Show # working in area
(program) they trained for
(survey)
Show "holding power"
of a program on students
(statistics)
Rank present
programs
[illegible]
Evaluate Courses in
Programs
College (survey)
List # needed to begin
program to guarantee # to
fill the gap
Show priority
differences between
employment &
college offerings
Show # now in each program
versus
the # needed in program
How Whole Community
perceives ed., college,
barriers, desires of people
Where are the potential
students that can be recruited
(Statistics)
List programs needed, # $ to
change assuming 1:1
Supply-Demand
Report Programs in
Proposed Order with costs &
# of students needed
Show where & what type
of student will take program
(stats)
Show characteristics of
students in programs
(survey)
Decide what decisions are
made at what administrative
levels
Send reports to proper
decision makers by admin.
level

Bureau for Education of the Handicapped Conceptual Model

The graphic concept of a needs assessment model developed by the Bureau of Education for the Handicapped (BEH) is helpful in understanding the steps in the process. It is presented in Navarro and Schipper (1975).

Identification. Typical of the formalization of the federal grants process in recent years, the BEH needs assessment model was designed to assist in the development of proposals. Essentially, the BEH model demonstrates the importance of social forces on a problem rather than on the determination of goals.

Scope. Conceptually, the BEH model can be applied to any problem-solving situation. In its simplicity, it is perhaps more applicable to all educational settings than are more sophisticated systems.

Purpose. The purpose of the BEH concept is to enact a process which considers the implications of social, political, and other forces that affect a given situation. By analyzing these forces, issues and needs are derived.

Model Design

Step 1 of the BEH model is *Analysis of Forces;* Step 2 is *Determination of Resulting Issues* which are then processed to *Identify Hypothetical Needs* (Step 3). The needs are confirmed or denied through *Accumulation of Data* (Step 4), and the *Confirmed Needs* (Step 5) are converted to *Program Objectives* (Step 6). The model is shown in flow chart form in Exhibit 59.

Summary

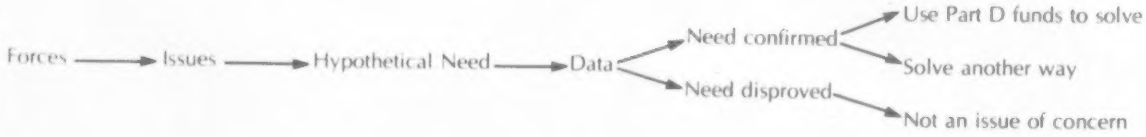
As pointed out in the introductory section to this chapter, no one system or model can completely fit every given situation. The preceding models have been described to portray the range of options available for local decision-makers. They specify the macro-designs for conceptualizing needs assessment systems.

Modifying designs from other systems can be a useful approach for a local needs assessment. Acquisition of a commer-

Exhibit 59: Bureau for Education of the Handicapped Conceptual Model

Source: Navarro and Schipper, 1975, p. 2

Conceptual Model for a Needs Assessment


Forces
Issues
Hypothetical Need
Data
Need confirmed
Need disproved
Use Part D funds to solve
Solve another way
Not an issue of concern

Terms

Forces ↓	Directives, generally outside the system, that determine what should be attended to in formulating an overall plan for training: e.g. laws, court cases, BEH priorities, etc.
Issues ↓	Priorities or concerns addressed by each of the *forces*; e.g. due process, severely handicapped, etc.
Hypothetical Need ↓	A tentative assumption, based on selected *issues*, that there exists within the State a disparity between what is and what should be.
Data ↓	Factual material used to confirm or disprove the *hypothetical need*.
Need ↓	A confirmed hypothetical need. *Data* has demonstrated that conditions do exist that need attention and intervention.
Major Objective	

cially available system might be the path of least resistance in contrast to the revision of several sources to meet individual needs. Needs are not standardized and neither are procedures for identifying and assessing them.

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9

Increasing Validity through Decisioning Techniques

Overview of Techniques

This chapter describes a series of techniques that can be appropriately used throughout the needs assessment process. Each technique is described in terms of its purpose, strengths, and weaknesses; and in most cases, a case study demonstrates its applications.

To be effective, needs assessment calls for active participation of all persons involved in the educational process—students, parents, teachers, administrators, and governmental officials. This interaction is enhanced when processes and meetings of these bodies are designed to allow more effective input.

Description of Techniques

Delphi. This technique is basically a means of gathering opinions from persons by mail. It is used in formulating goals, obtanining consensus, and soliciting undefined information.

Cross Impact Analysis. This extension of the Delphi technique depicts the interrelatedness between events using a matrix analysis. It examines educational events in the context of their local setting or in their community context.

Simulation/Gaming. This makes possible the generation of possible future events by means of a speculative game. It provides an opportunity to simulate to consider possible problems and the effect of suggested program implementation before actually trying it.

Trend Extrapolation. This technique uses past and present trends to predict future trends, future enrollments, building needs, or staff size.

Scenario Writing. This calls for the generation of possible futures by speculating about what might or could be. It is generally used to stimulate thinking about positive changes in regard to system goals and priorities.

Historical Analogy. In this approach key happenings from the past are related to the present and the future. The technique may be used to determine if past pitfalls can be recognized and avoided in future planning.

Brainstorming. This technique stimulates uninhibited input of ideas by a group. As many creative solutions to problems as possible are generated.

Fishbowl. Four to six people discuss a topic or problem while others surround them to listen and ask questions. It is useful for eliciting ideas of a particular role group or for presenting ideas from a committee.

Buzz Sessions. This technique is used in a meeting or conference by dividing members into sub-groups to discuss a topic and to share these reactions with the total group. It intends to eliminate the domination of a group by a few individuals and to stimulate participation by everyone.

Force Field Analysis. This procedure analyzes problems by considering a goal and listing the factors either for or against accomplishing it. It helps to identify the strategies that would enhance goal attainment and to diminish the importance of factors that would inhibit implementation.

Future-Oriented Studies

Many of these techniques have implications for needs assessment and have grown out of futures-oriented research. Futures research is an emerging sub-discipline in education and in other fields, and its major thrust is the anticipation of alternative courses of action that could facilitate social passage into tomorrow's world.

Cloutier (1977) warned that to solve the problems facing the whole society "the first step is the recognition that these problems reach across traditional disciplines, and their solutions are interdisciplinary. We must do away with 'tunnel vision' in which the investigator quickly loses sight of all connections between his work and that of anyone else." Futures-oriented research tends to avoid this tunnel vision and gives its user a technique to examine alternatives, make insightful judgements, consider particulars with respect to their global perspective, and account for the interrelatedness of today's rapidly changing world.

Because research methods for studying the future are new and often misunderstood, they are being continually modified and refined. Educational institutions most often use futures research techniques for planning and curriculum development. By attempting to predict skills that the student will need in the future, schools are able to fulfill one of the basic reasons for their existence—teaching students to deal effectively with their present environment and to prepare themselves for the future.

The Delphi Technique

The Delphi technique, originally developed by the Rand Corporation, is a conceptually simple innovation which may be used to summarize opinions or judgements obtained from persons through mailed questionnaires. Thus, consensus can be drawn without the group's ever assembling. The Delphi consists of these steps:

1. A panel is selected that may be composed of experts in a field, parents, students, or some other officials.
2. A questionnaire is mailed to panel members asking them to list their opinions or judgements concerning the subject being considered (In a needs assessment, they may be asked to identify major goals or serious problems for a school).
3. Recommendations from the panel are refined and listed on a second questionnaire. This questionnaire then asks panel members to rate each item in terms of its importance, need, or chance of success
4. Items received as responses on the second questionnaire are analyzed and reported as *means* or as being in *interquartile* ranges. This summary of the group response as well as the comparison of each panel member's responses to the majority of the group is returned with the third questionnaire. Members are asked to revise their ratings or to give the reason they do not wish to do so and thus remain in the minority.

5. This third questionnaire is analyzed upon its return. Again majority ratings are determined for the responses. These majority ratings, as well as minority opinions, are mailed to the members, and they are given a final opportunity to revise their ratings.

By using this process, needs assessors can gain a consensus of opinion and an awareness of any diverse reactions to events under consideration.

The Delphi may be used in several ways in a needs assessment. First, it can highlight the varying viewpoints on a subject and the groups of persons holding those viewpoints. Second, it can generate a consensus among persons without face-to-face discussions. Third, it can synthesize expert opinion of persons from varying disciplines. According to Linstone and Turoff (1975), some of the potential applications of The Delphi include:

1. Gathering current and historical data not accurately known or available.
2. Evaluating possible budget allocations.
3. Exploring regional and urban planning options.
4. Planning campus and curriculum development.
5. Putting together the structure of a systems model.
6. Delineating the pros and cons associated with potential policy options.
7. Developing causal relationships in complex social or economic phenomena.
8. Distinguishing and clarifying real and perceived human motivations.
9. Exposing priorities of personal values and goals.

Advantages and Disadvantages of Delphi

As a summary of its advantages, the Delphi technique:

1. Permits focused interaction between people who are geographically dispersed.
2. Allows persons in separate fields to exchange ideas.
3. Is relatively inexpensive.
4. Requires less time commitment from panel members.
5. Provides each panel member with information on the responses of other panel members.
6. Gives panel members time to consider their judgements and to make independent decisions.
7. Can be adapted to a wide range of problems, topics, or areas.

The disadvantages of Delphi stem primarily from its construction and implementation, resulting in:

1. Vague statements that lead to ambiguous results.
2. Return rates from panel members which tend to decrease with each round of questionnaires.
3. Lengthy time required to complete the process (including time to formulate the questionnaire, mail to the panel, have the panel respond and return the questionnaire, analyze results, and prepare for the next round of the process).
4. Lack of stimulation through face-to-face discussions.
5. Misinterpretation by panel members of the meaning of statements with no process for clarification.

Case Studies

Two case studies illustrate the Delphi technique—one used to idenfity goals and the second which specified needed changes in deaf education based on projected future events.

Case Study 1: A Goals Delphi. Experience in using the Delphi to rank goals suggests that consensus about goals is more readily achieved if the Delphi focuses first on objectives rather than on general goals. Once objectives are defined, goals can be specified with much greater ease than when the process is reversed. Exhibit 60 shows the Delphi steps used in one study. They are helpful in depicting the relationship between participant actions and Delphi administrators.

The purpose of a hypothetical study was to identify the divergent perceptions of high school students, parents, and teachers in terms of the school goals. Round 1 was sent to participants who ranked each objective. The form is shown in Exhibit 61.

Before Round 2, results of Round 1 were analyzed and sent to participants who were asked to rate each objective using information from the previous round as feedback. Participants outside the interquartile range (ratings of middle 50 percent of participants) were asked to reassess their rating for that goal and either modify it or explain their reasons for their rating. The form used in Round 2 is illustrated in Exhibit 62. The effect of the Delphi process in producing consensus is illustrated in Exhibit 63.

Exhibit 60: Relationship between Participant Actions and Administrator Actions Using the Delphi Technique to Prioritize Goals

Source: Scheibe *et al.*, 1975, p. 264

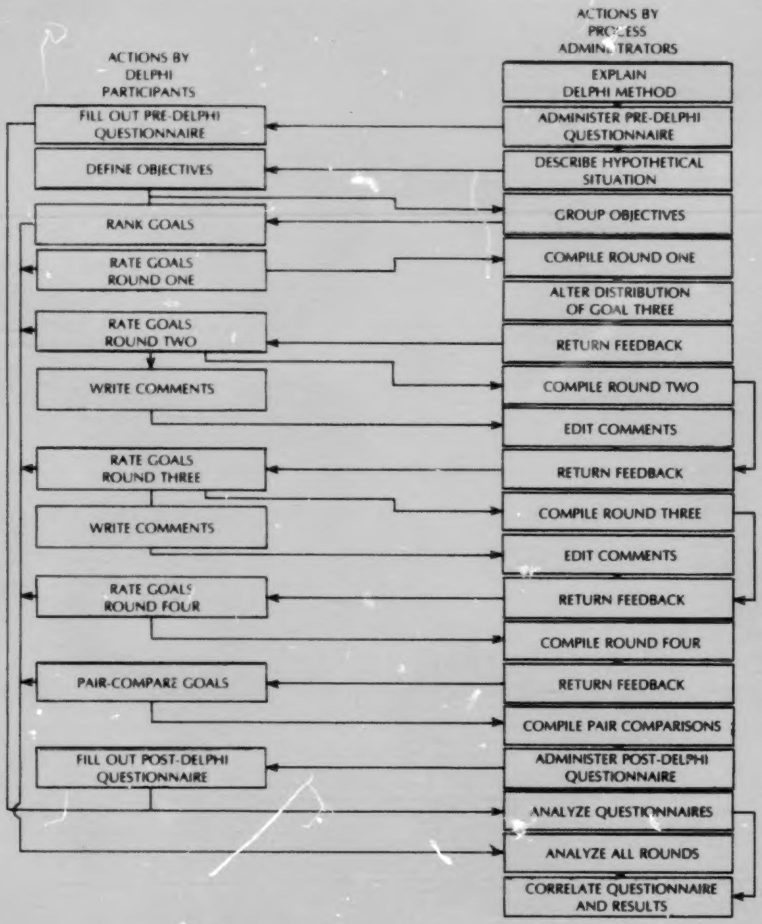

ACTIONS BY PROCESS ADMINISTRATORS
ACTIONS BY DELPHI PARTICIPANTS
EXPLAIN DELPHI METHOD
FILL OUT PRE-DELPHI QUESTIONNAIRE
ADMINISTER PRE-DELPHI QUESTIONNAIRE
DEFINE OBJECTIVES
DESCRIBE HYPOTHETICAL SITUATION
GROUP OBJECTIVES
RANK GOALS
RATE GOALS ROUND ONE
COMPILE ROUND ONE
ALTER DISTRIBUTION OF GOAL THREE
RATE GOALS ROUND TWO
RETURN FEEDBACK
WRITE COMMENTS
COMPILE ROUND TWO
EDIT COMMENTS
RATE GOALS ROUND THREE
RETURN FEEDBACK
WRITE COMMENTS
COMPILE ROUND THREE
EDIT COMMENTS
RATE GOALS ROUND FOUR
RETURN FEEDBACK
COMPILE ROUND FOUR
PAIR-COMPARE GOALS
RETURN FEEDBACK
COMPILE PAIR COMPARISONS
FILL OUT POST-DELPHI QUESTIONNAIRE
ADMINISTER POST-DELPHI QUESTIONNAIRE
ANALYZE QUESTIONNAIRES
ANALYZE ALL ROUNDS
CORRELATE QUESTIONNAIRE AND RESULTS

Exhibit 61: Delphi Round 1 Questionnaire

Opinionnaire

Our high school is examining its programs and priorities. A major facet of this involves the perceptions of a select group of parents, teachers and students.

You are one member of this group, and because of the small number of people involved, we hope you will participate fully. This is the first of three surveys. You will receive the second in about three weeks.

For each objective listed below, circle your rating; 0 = Unimportant objective for this high school during the next five years. 9 = Very important objective for this high school. Circle your response:

Unimportant *Very Important*

0 1 2 3 4 5 6 7 8 9 1. Prepare students for entrance to college

0 1 2 3 4 5 6 7 8 9 2. Prepare students for a vocation or career

0 1 2 3 4 5 6 7 8 9 3. Provide work experiences for students during school hours with credit

* * *

0 1 2 3 4 5 6 7 8 9 44. Organize school clubs around vocational interest areas

0 1 2 3 4 5 6 7 8 9 45. Provide additional counselors to work with seniors

These are only some of the objectives that should be pursued by our high school. On our next survey, we would like you to enter any others that you feel are important and that we have missed. Please list them below.

Exhibit 62: Delphi Round 2 Questionnaire

Opinionnaire
Round Two

Three weeks ago you participated in a survey of preferred objectives for our high school. Results of that survey are found below. The following illustrates how each objective is to be interpreted.

0 1 2 3 ~~4 5 6~~ 7 8 9   1. Prepare students for entrance to college.

Interpretation: A line drawn through the 4, 5, and 6 indicates that 50% of participants marked one of these three values. 25% rated this objective lower and 25% rated it higher than this.

Your Task: Use your previous opinionnaire, and circle your rating on each objective.

If your rating is within that of the middle 50% of respondents (a line through it) and if you do not wish to change it, leave it as it is.

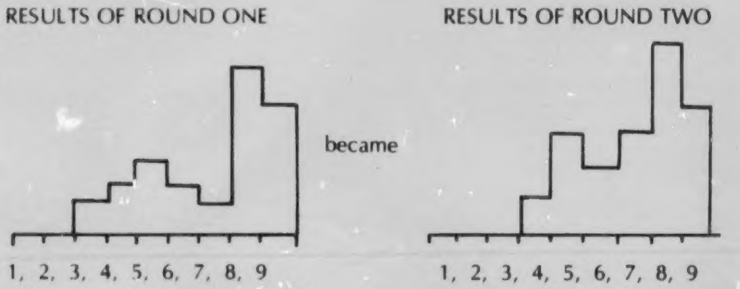
If your rating is outside that of the middle 50% of respondents, you may *either* change your rating to within the line *or* write the reason you believe your rating is appropriate. Do not be swayed by majority opinion if you believe otherwise. In previous surveys, a persuasive statement has shifted others' thinking. Your comments will be included in the next survey.

Feedback to the panel on the responses of other people tends to affect ratings, thus leading to greater consensus within the panel. This is illustrated in Exhibit 63 by the smaller standard deviation for Round 2 than for Round 1.

Case Study 2: Education for the Deaf—The Next Ten Years. In another example, the Delphi technique identified changes over a decade in an effort to improve the education of the deaf (Prickett, Hunt, 1977). Each of twenty-seven experts was asked to suggest at least five other persons who were knowledgeable in the field and who were in decision-making roles. Distributed nationwide, 134 people became respondents in Round 1.

Round 0. Each respondent was asked to list at least five trends in deaf education and to indicate the direction of

Exhibit 63: Graphs of Responses
to Round 1 and Round 2 of Delphi



GOAL 6
Mean 6.48
Standard Deviation 1.99

GOAL 6
Mean 7.10
Standard Deviation 1.43

change: increasing, decreasing, larger, smaller. The 473 statements generated in Round 0 were reduced to seventy-six predictions of changes expected to occur by 1985.

Round 1. The resultant questionnaire was sent to 122 of the original respondents. They were asked to evaluate each item on a seven-point scale (1 = very unlikely, to 7 = very likely) according to its likelihood of occurrence by 1985 and to evaluate each item on the questionnaire according to the desirability of its actually occurring (1 = very undesirable, to 7 = highly desirable).

Round 2. The data from Round 1 were analyzed for "likelihood" and "desirability" of each item. Mean values were used to develop a Round 2 questionnaire, which was sent to 65 respondents who had participated in Round 1. This time the respondent was asked to justify differences from the means. The Round 2 document was analyzed to find the mean of the item responses, "and reasons for deviation from mean" responses were summarized.

Round 3. The mean responses and summaries of minority opinions from Round 2 were used in the development of a Round 3 questionnaire. Each person (63) who responded to Round 2 was sent the Round 3 questionnaire. The mean responses for each item from Round 2 along with a summary of minority opinions were indicated. Exhibit 64 includes a part of the Round 3 questionnaire.

In Exhibit 64, the mean rating is found in parentheses [e.g., (5.5), (4.5)]. Under comments, an L represents a comment by a person favoring lower ratings.

Cross Impact Analysis

Cross Impact Analysis is an extension of the Delphi Technique designed to improve the power of the Delphi by estimating the impact of events on each other. The Delphi assumes that events are discrete; cross impact analysis makes no such assumption. It is based on the theory that one event may inhibit or enhance another. The methodology was developed by Gordon and Helmer at the Institute for the Future. According to Rochberg, *et al.* (1971, p. 8):

> A Cross Impact Matrix is an array consisting of a list of potential future developments and two kinds of data concerning them. (First, the estimated probabilities that these developments occur within some specified period in the future, and, second, estimates of the effect that the occurrence of any one of these events could be expected to have on the likelihood of occurrence of each of the others.) In general, the data for such a matrix are obtained by collating expert opinions derived through the use of methods such as the Delphi Technique.

Cross Impact Analysis has been used primarily in industrial and governmental forecasting and planning. To date, only a few applications to education have been made, and they have been small in scale.

The nature of Cross Impact Analysis can best be described through an examination of the matrix presented in Exhibit 65 (Collazo, *et al.*, 1976, p. 36). Construction of the matrix involved the following steps:

1. For each event, an initial probability was estimated, based on research or expert opinion. In the example, it was estimated that the probability of auto use increasing was .75.
2. A "conditional probability matrix" was developed. If there were three events as in the example, the matrix would have been 3 × 3; if there were 12 events, it would have been 12 × 12.

201

Exhibit 64: Delphi Questionnaire Round 3

Source: Prickett and Hunt, 1977, p. 377

PREDICTION OF CHANGES IN EDUCATION OF THE DEAF EXPECTED TO OCCUR BEFORE 1985

Name: ______________________ Position: ______________________

Organization: ______________________ Phone No. ______________

Address: ____

Instructions:

In the set of items on the following pages you are asked to provide ratings on the likelihood and the desirability of certain trends or changes which would be of importance in the field of education of the deaf should they occur. The time frame is "by 1985".

Statements concerning particular changes or trends are given on the left side of the form. Your responses should go directly on the form to the right of each of the change statements. Please draw a circle around a number in the continuum from one (1) to seven (7) which best represents your view of each change item's likelihood and its desirability.

Values	*"likelihood" terms*	*"desirability" terms*
7	very likely	highly desirable
6	likely	desirable
5	somewhat likely	somewhat desirable
4	noncommitted	noncommitted
3	somewhat unlikely	somewhat undesirable
2	unlikely	undesirable
1	very unlikely	very undesirable

Change statement	Likelihood: What is the likelihood this change will occur? (circle one)	Desirability: Should this change occur? (circle one)	Comments
1. More attention will be given to family life education and sex educatoin for the deaf	1 2 3 4 5 6 7 (5.5)	1 2 3 4 5 6 7 (6.1)	L-I doubt deaf want this. L-Highest used captioned film material.
2. By 1985 the residential school will be primarily a school for the multi-handicapped deaf.	1 2 3 4 5 6 7 (4.5)	1 2 3 4 5 6 7 (3.2)	I-Multiple handicapped may decrease. L-Change won't take place in 10 years.

3. The impact of each event on all other events was estimated. In row 1 of the illustration, the .80 means that if auto use continues to increase through 1990, the probability that there will be an acute shortage of fossil fuels will increase from .50 to .80. Likewise, if auto use continues to increase, the probability that all major cities will have mass transit systems in 1990 would decline from .25 to .15.
4. Results may be analyzed by a computer to determine the resulting probabilities for each event, given estimates of other events occurring.

Exhibit 65: Cross Impact Matrix
Source: Collazo *et al.*, 1976, p. 36

Events	Initial Probability	Conditional Probabilities		
		1	2	3
1. Auto use continues to increase through 1990	.75	–	.80	.15
2. An acute shortage of fossil fuels occurs by 1990	.50	.25	–	.60
3. All major U. S. cities have rapid mass transit systems in operation in 1990	.25	.65	.40	–

Advantages and Disadvantages

Advantages of the cross impact matrix are that it:

1. Provides a statistical method for determining the impact of interactions among events based on the original probability of occurrence. With a large number of variables, the technique can be particularly powerful.
2. Permits analysis of events within a wide social and technological context.

Disadvantages of the techniques include those listed for the Delphi and also that:

1. Implementation is complex, requiring either a series of mathematical computations or, with larger numbers of variables, computer analysis.
2. Events are assumed to influence each other in consistent ways.
3. The order of events is not assumed to affect their relative weightings in the calculations, yet in reality, sequence of events often does affect outcomes.

An in-depth description of the problems concerning the use of cross impact analysis as an analytic tool in actually forecasting future occurrences is included in the following source:

Folk, Michael. EPRC Research Report RR 5. *A Critical Look at the Cross Impact Matrix Method*. Educational Policy Research Center Syracuse University Research Corporation, Syracuse, NY 13210.

Case Study

Florida educators (Collazo *et al.*, 1976) used cross impact matrix in two ways: (1) ten variables affecting educational outcomes were considered, and then (2) future directions of change on five social indicators were forecast.

A list of variables that appeared to affect student outcomes was derived by reviewing research in the area. Second, a panel of experts identified variables it considered important. Third, a forced-choice procedure was employed to determine those variables judged most important in influencing school outcomes.

The ten variables having the highest ratings were used as components of the cross impact matrix. These variables (Collazo *et al.*, 1976) were:

1. Socio-economic status of the family.
2. Family expectations, attitudes, and aspirations.
3. Student's self-concept.
4. Peer group characteristics.
5. Student's general ability.
6. Student's fate control.
7. Administrative leadership style.
8. Teacher expectations regarding learning ability of specific students or classes.
9. Teacher behavior in the classroom.
10. Student's attitude and motivations.

In addition, five social indicators to be used in making the forecast were identified (Collazo, *et al.*, 1976).

1. Percentage of armed forces inductees who fail the mental test upon induction.
2. Eighth-grade test results.

3. NAEP reading test results for 13-year-olds.
4. Number of newspaper subscriptions per capita.
5. Percentage of labor force unskilled.

Two further steps were taken. First, the year 1981 (five years into the future) was established as the referent point. Second, each variable was stated as an event with a direction; e.g., number 3 became "students' self-concepts will decrease by 1981." Social indicators were also stated as events; e.g., "the scores on the NAEP test for thirteen year olds will increase by 1981."

Because few data were available, the researchers drew on the varied experiences of members of a university faculty panel to assign initial and conditional probabilities. The means of their ratings were recorded as the initial probability for the variables affecting education, while the social indicators were always estimated initially as .50. A table was prepared that included the ten variables plus one of the social indicators to determine the extent to which they were interrelated. This initial probability is illustrated for social indicator three in Exhibit 66.

In the second step, the impact that each event would have

Exhibit 66: Cross Impact Analysis Matrix
for NAEP Test Results
Source: Collazo *et al.*, 1976, p. 40

Event	Initial Probability	1	2	3	11
1. Family expectations, attitudes & aspirations will decline	.64	–	.63	.62	.41
2. Peer group expectations, attitudes & aspirations relative to education will decline	.54	.65	–	.61	.67
3. Percent of children living in poverty will increase	.60	.68	.61	–	.63
10. Teacher behavior with respect to instructional practices will improve	.50	.54	.50	–	.50
11. NAEP test results for 13-year-olds will increase	.50	.54	.49	.32	.47

on all other events was estimated to assign conditional probabilities. In Exhibit 66 the first question was asked: If "family expectations, attitudes, and aspirations decline" (Event #1), how will these affect the probability that "peer group expectations, attitudes and aspirations relative to education will decline?" (Event #2) it was estimated that if Event #1 occurred, it would increase the probability that Event #2 would occur from .54 to .65.

Column 11 includes the estimates of impact of each variable on the social indicator, "increase in NAEP ready test results for 13-year-olds." For example, in the first row, it was estimated that if family expectations, attitudes, and aspirations were to decline, the scores on the NAEP test would decline. The conditional probability became .41 instead of the initial probability of .50.

Computer analysis was used to improve the estimated initial probabilities of all the events. Ratios between the initial probabilities and the conditional probabilities were considered in determining the odds for the occurrence of an event. All events and their effect upon one another could thus be seen by use of the computer analysis.

Cross Purpose Matrix

The Cross Purpose matrix provides a procedure for stimulating dicussions about various goals advocated in the needs assessment. It also provides a way to prioritize goals without using ratings. Competing goals are displayed in a matrix; then through discussion and deliberation, the relative value of each with reference to the others is determined (Sandow, 1972). In Cross Purpose analysis, a goal is defined as an event that someone intends to occur. The first step is to identify the goals for the school and a person who advocates each goal.

Second, the advocate estimates the most plausible date the goal could be attained, given the time needed to complete necessary activities and assuming that the goal is the top priority of the school district. Third, a matrix is constructed with all goals listed chronologically on both the horizontal and vertical axis, beginning with the earliest plausible date.

Fourth, each advocate completes that portion of the matrix appropriate to the goal. When responding horizontally (row), the advocate answers this question: "assuming this goal is attained 100 percent, what will its impact be on the success of each of the other goals as I now understand them?" The following code is used: ++ = strong positive impact; + = positive impact; 0 = neutral or no impact; − = negative impact and − − = strong negative impact (Sandow 1972, p. 38). A question is answered by marking one of the ratings in the *bottom* half of each cell.

Each advocate then notes the same goal vertically (column) on the matrix based on the question: "If this goal is 100 percent successful, what impact will it have on my goal? The same response code is employed, but is written in the *top* half of the cell. Exhibit 67 illustrates this process for one goal, number 4.

Fifth, after each advocate has recorded an estimate of impact, all are displayed in a common matrix. With these data made public, exploration of the reasons for the various ratings and implications for goals being achieved may be discussed. Negotiations are held until a single rating in each cell reflects the perception of the impact of one goal on another.

The resulting information may be analyzed to determine the probable impact on one set of goals on the total program. Patterns of positive and negative impact may be examined. When combined with the Delphi or other approaches to prioritizing goals, the Cross Purpose Matrix provides a graphic representation of relationships among competing priorities.

Advantages and Disadvantages

The advantages of Cross Purpose Matrix analysis are that it:

1. Forces those who advocate a goal to make public their strategies for accomplishment.
2. Provides an opportunity for individuals to examine their own judgements.
3. Calls upon advocates to explain the value of their goals to the institution.

4. Focuses attention on the worthiness of individual goals in relationship to the whole.
5. Identifies goals that may be in opposition to each other.

The disadvantages of Cross Purpose Matrix analysis are that it:

1. Is non-data based.
2. May be time-consuming.
3. Requires openness by participants.
4. May be difficult to understand.

Exhibit 67: Cross Purpose Matrix
Showing Potential Impact from Emphasizing Certain Goals

ADVOCATE

GOAL		1 Improve interpersonal relations among students	2 Increase achievement in basic skills of math and reading	3 Broaden social studies inquiry	4 Expand career education opportunities through work experience	5 Extend language arts opportunities to express thoughts in writing	
Improve interpersonal relations among students	1	▨			0		Yeager
Increase achievement in basic skills of math and reading	2		▨		+		Smith
Broaden social studies inquiry	3			▨	--		Brown
Expand career education opportunities through work experience	4	0	-	--	▨	--	Johnson
Extend language arts opportunities to express thoughts in writing	5				--	▨	Jones

Simulation/Gaming

Simulation/gaming processes offer excellent opportunities for indirectly assessing needs and permitting those engaged in the process to try out their own ideas. Simulations, however, are seldom used, since most assessors favor more traditional approaches.

Simulation/gaming involves participants in complex situations, giving them experience in interacting with certain environments and people and allowing them to try different approaches.

In all applications of gaming/simulation, certain common elements can be found (Armstrong and Hobson, 1975, p. 83):

1. Roles not necessarily corresponding to those assumed in the real-life situation;
2. A scenario defining a problem area or a given 'state of the system';
3. An *accounting system* designed to record such decisions and events together with their consequences, or that occur during play;
4. Algorithm(s) (implicit or explicit) which indicate(s) *operating procedures* for playing and controlling the exercise.

A number of excellent simulations/games are commercially available. Sources are listed at the end of this section. Most have specific purposes—changing attitudes, testing analytical skills, and putting meaning and reality into concepts, such as in economical, social, or political systems.

These probably are not directly applicable to needs assessment systems and would need to be translated for use. The basic educational and sociological concepts can be employed or the basic approaches can be used in another context.

Advantages and Disadvantages

Advantages of simulation/gaming are as follows:

1. Provides an interactive learning situation.
2. May be used to help clarify values.
3. Allows the testing of a plan before it is put into action.
4. Allows planners to consider their actions in relation to the total societal context.

Disadvantages may be considered as:

1. Currently, no hard data about the future.
2. May be considered no more than play by participants.

Case Study

One simple use of the technique involves this equipment: (1) a set of assessor cards, one each for persons to play the role of parent, high school student, college professor, mayor, legislator, superintendent of schools, and high school teacher; (2) a set of value cards (−2, −1, 0, 1, 2) for each assessor; (3) a playing board similar to *Monoply*; and (4) blank needs cards. One set of players becomes "assessors," playing pre-defined roles and evaluating results in terms of those roles. A second set of players becomes "presenters," and each has one minute to present and convince the assessors that their school need is the most important. After four presenters have made their cases, each assessor assigns a value card to each presenter in terms of the power of the presentation and the potential of the idea. Each player then turns over the value cards and moves the marker the total sum of positions on the board. Since there can be negative values, the presenter might actually move backwards.

In a variation, several needs for the school are predetermined, limited to 3-5 areas, with three cards per area. The moveable marker on the board, rather than representing a presenter, stands for a particular need. Each presenter then draws a card (on which a need statement is written), e.g., "our school needs to improve the reading skills of students," and spends one minute explaining why it is an important needs. Other presenters draw and explain until four cards are drawn. Assessors again rate the needs, and a marker representing each need is moved forward the sum of ratings. The round is repeated two more times so that each need area is discussed from three perspectives with the "winner" being the need whose marker has progressed the greatest distance.

The gaming aspect permits people to say and do things that might otherwise be difficult for them and to play roles important in getting at true perceptions.

Trend Extrapolation

The use of present and past trends to predict the future is called *trend extrapolation*. This technique assumes that what has happened in the past will likely continue in the future. It may be used as a method in itself or combined with other methods, such as scenario writing or simulation/gaming.

As a form of forecasting, the use of trend extrapolation began when accurate statistical record-keeping became a common practice. It became apparent to statisticians that patterns or trends often emerged.

Trend extrapolation uses statistical data that have been plotted along a time line to observe emerging patterns or trends. If a pattern is visible, it is projected ahead to make a prediction of future events.

An increasing sophistication of statistical methods and accuracy of data collection make trend extrapolation a more reliable technique. When it becomes obvious that the forces that have shaped a particular trend are likely to remain constant, planners may project as far ahead as the forces may remain constant.

Advantages and Disadvantages

Some advantages of trend extrapolation are that:

1. The method is well-defined, based on increased accuracy of statistical procedures.
2. It may be an accurate predictor of the future if there is a correctly identified trend.

Disadvantages are that:

1. It does not analyze the underlying causes of trends.
2. Predictions may be highly erroneous if uncontrollable elements, such as a natural disaster, are present.

Trend extrapolation has been used extensively in administrative studies over the past two decades. Predictions of future enrollments were made by comparing past enrollments with population trends and by projecting into the future.

The school tax base, additional costs due to inflation, and other fiscal matters have been projected using trend extrapolation. Population figures and graphs are available by census tracts with a wealth of data on the school area. Time-based graphs have been used to diagram ethnic shifts in populations.

Scenario Writing

A scenario is a description of the future states of factors influencing society and the interconnections among these factors. Perfected by Herman Kahn and popularized in *The Year 2000*, it attempts to examine and combine various trends in a systematic way. Scenarios can be viewed as "future history" (Kahn, 1973).

Mendell (1971, p. 17) defines a scenario as "narrative description of one version of the future. It purports to show how a certain train of events will lead to a desirable or (usually) undesirable result." In futures research, scenario writing is viewed as one approach for generating forecasts. Several criteria for assessing the quality and usefulness of the forecast were set out by the Institute of the Future (Amara and Salancik, 1972), p. 112–113):

1. *Specificity.* A forecast should be stated in terms which are specific enough to permit unambiguous determination of fulfillment or nonfulfillment.
2. *Uncertainty.* Forecasts should be stated in terms of probability of occurrence or a distribution of a value or a range of possible dates at which a probability of occurence is expected to reach a given level or in other probabilistic terms.
3. *Time Relatedness.* Forecasts reflect stages of change, growth, development, diffusion, dissemination and the like. Events to be forecast are determined not by time, *per se*, but rather by concurrent events which take place during time.
4. *Intrafield Relatedness.* This requirement recognizes that related developments in the same general area as the forecast event are not likely to remain static while the forecasted event is evolving.
5. *Interfield Relatedness.* A forecast should reflect knowledge or development in other fields that may influence the development in question.
6. *Recognition of Costs and Benefits.* A forecast should incorporate knowledgeable judgements about economic and social costs and benefits and reflect the perceived trade-offs between benefits and costs.

Advantages and Disadvantages

Advantages of scenario writing are that it:

1. Forces persons to look at possibilities they may never have considered by generating alternatives that could occur.
2. Takes persons out of the present and forces them to focus on the future.
3. Provides a view which shows interaction of psychological, social, and political elements.

Disadvantages of scenario writing are that it:

1. May be controlling in that it suggests possible alternative futures.
2. Is non-data based.

Case Study

In projecting the needs assessment, a number of different scenarios, or alternative futures may be used to illustrate the effects of various events which might occur and the ways they might affect the long-term future of education. The following example of a scenario illustrates both the technique and some possible events:

> Members of the Metropolitan school board convened today for the first time since taking office in the wake of sweeping political changes that placed the New Technocratic Party into national power in last fall's general elections.
>
> Board members assessed 1996 census updates which have again changed the face of the local school district. With amalgamation of suburban school systems in the past few years, the district now has 300,000 students—the third largest in the country.
>
> District planners reviewed the series of scenarios produced during the 1980's which predicted the effects of the transportation/energy crisis of 1986. Current enrollment patterns indicate a continuing growth pattern for at least the next five years, according to the Metropolitan board.
>
> The reorganization of local schooling came with the technological innovations which spawned the New Technocrat Party. The development of the holographic video recorders in 1988 permitted the first school/home television connections which eased overcrowding problems and removed physical attendance requirements.
>
> The rapid transmission of dial-access education-bank materials permitted school officials to begin phasing out most formal classes required of children past the age of ten. The modification of existing buildings into primary

socialization centers began with the conversion program of 1990, foreseen in the planning scenarios of 1988.

At the first meeting of the newly elected board, members heard a preview of the latest development of holographic recorders which have sped up transmission times to allow home education units to store a full day's programming tailored to individual student needs using only two minutes of central computer time. The playback of educational programming will permit monitors and older learners to regulate learning time according to their self-determined speed.

The first actions taken by the board included a directive to focus the continuing needs assessment on alternative scenarios to optimize the newly advanced holograph systems. Additional agenda items included consideration of a broadening of the conveyer transit system's educational mobiles. At present, one car on each People Mover is devoted to video recorder units. A feasibility study was approved to determine the ease of linking portable learning sets with the central data bank by holographic transmission.

Historical Analogy

Another potentially useful tool in needs assessment is the historical analogy, particularly if used for social prediction. If applied with both breadth of vision and depth of perception, it can achieve unique insights into the needs of a community. The quality of thought makes the difference between profound accomplishment and the many lesser examples of historical analogy. While few needs assessors may have the resources for a comprehensive effort, the process may hold promise for providing insights into alternative futures.

The historical analogy requires a parallelism in history, an essential similarity of key variables. Always tenuous, this similarity must extend to those factors that are meaningful and important rather than peripheral. History may repeat itself in some essential respects, but such repetition is not inevitable.

Advantages and Disadvantages

Advantages of historical analogy are that it:

1. May be used to project future as an extension of the past.
2. Allows for reflective view of conflict.

Disadvantages of historical analogy are that it:

1. May be risky.
2. Have no defined procedure for an historical analogy.

Brainstorming

Brainstorming is a relatively simple procedure that can provide a wealth of ideas in needs assessment. Steering committees have used it to generate ideas about unique ways for collecting data on particular needs, to identify goals, and to list different ways for implementing a program. They can consider creative approaches to any of the many problems that face them during the assessment phase and later in the implementation phase. Although well known to educators, this technique is not always used to its fullest extent or in the best context. Some ideas for improving the technique are noted below.

1. The problem on which the brainstorming session focuses should be specific rather than general. If the problem is too large or complex, break it down.
2. Brainstorming participants should be selected with care. Persons with a wide range of expertise, as well as some who have no knowledge of the area, should be included. Some of the most persuasive social science break-throughs of recent years have occurred when a person from one discipline or perspective was working in another field.
3. Eight to fifteen persons are an appropriate group size for brainstorming. The group should be large enough to generate a range of ideas, but not so large as to be unmanageable. A few "self-starters" should be in the group, people who can produce ideas on anything and everything at the drop of a question. They help stimulate thinking and get sessions off and rolling. Administrators and power figures will tend to inhibit participants. They and visitors should be included only with that awareness by the organizers.

Prior to the first session, the participants should be briefed on the problem they will be brainstorming. A letter or memorandum reminding them of the date, the time, and the place, and the topics to be considered will allow for a period of individual thinking. If this is not feasible the problem should be posed in the beginning of the session, and then participants should be given five minutes to think and make individual notes before beginning the general session.

Actual sessions should be conducted according to four basic "ground rules" of brainstorming (Mason, 1960):

1. No criticism is allowed.
2. Encourage unrestricted thinking.
3. Seek as many ideas as possible.
4. Combine ideas of various people.

The chair is crucial to a successful brainstorming session; the responsibility of the chair is to encourage participants and to insure that each person has an opportunity to take part. Chairs often "pre-brainstorm" problems prior to the session, searching for categories of possible ideas and generating leading questions to stimulate the group's thinking.

Regardless of quality, all ideas are recorded. If the session is fast-moving, two recorders should be used. While there are not any rigid rules on time limits for a session, forty-five minutes to an hour and a half is feasible. After ten minutes in a session, there is often a lull, signaling the end of easy suggestions and the time participants must really start thinking and becoming creative. At this point the chair may have to draw on pre-brainstorm ideas to rejuvenate the session.

Advantages and Disadvantages

Advantages of the brainstorming technique may be summarized as follows:

1. Generates wide range of creative ideas.
2. Provides atmosphere that encourages individuals to feel free to make suggestions.
3. May uncover new ways to solve old problems.

In considering the disadvantages of brainstorming, the following are crucial:

1. Possible difficulty in pinpointing problems.
2. Reluctance of participants because they do not wish to look stupid.
3. Criticism during the session.
4. Preclusion of problems requiring value judgements.
5. Difficulty in selecting "kind of problems."

Buzz Sessions

The "Buzz" technique was originally developed by J. Donald Phillips to encourage audience-wide participation in discussions. His concept of the technique was that groups of six persons would discuss a problem or assigned topic for six minutes. This technique is particularly effective when larger audience thinking and input into the process is desired. The basic goal of the technique is to encourage democratic participation in a meeting or conference and to limit the influence of a small but vocal minority who tend to inhibit wider participation. It can be used during the traditional question-and-answer period following a presentation, as the basis for an entire meeting, or in conjunction with other standard discussion and participation devices.

The buzz session is designed around a carefully prepared question on a specific point and has both a stated objective (the answer to the question, suggestions for action, or a recommendation) and a limited time to reach that objective.

To begin a buzz session, the audience should be divided into groups of six using any convenient method. Each group is asked to select a chair and a secretary. The chair insures that everybody has an opportunity to participate and that the group keeps moving toward its objective to reach a definite conclusion. The secretary records notes that are pertinent to the subject and makes a list of the ideas produced. The notes are reported to the total audience (or a sample if the number of groups is unusually large, with all notes and ideas filed with the secretary of the needs assessment steering committee). Satisfaction by members of an audience is greater when the leadership signals strongly to them that they have been heard, that what they said is important, and that it will be acted on.

Advantages and Disadvantages

Advantages of buzz session are as follows:

1. Encourages individual participation in a group process.
2. Prevents vocal minority from controlling a meeting.
3. Allows a wide representation of community views.

Disadvantages of buzz session may be summarized as follows:

1. Requires that group leader be efficient in organization and diplomatic guidance of a large group.
2. May not generate any useful information.
3. May be noisy and distracting.

Fishbowl

Another technique for eliciting ideas for needs assessments is the fishbowl. In its simplest form, four to six persons are placed in the center of the group and begin discussing a problem or issue. Those on the outside may look and listen but may not participate in the discussion. In a variation, a person on the periphery may put himself in the center in order to participate. In another variation, the outside group can ask clarifying questions, but not make statements.

The uses of the fishbowl in needs assessments are many. Role groups can be placed in the fishbowl to discuss the concept of the school's needs. High school seniors have participated while their teachers and parents were in the audience. So too have teachers participated with community representatives in the audience or parents with teachers as the audience. The group selected for the fishbowl should relate directly to the questions being posed.

In one assessment project, the steering committee used the fishbowl to present its plan to the community and school groups. While in the fishbowl, members presented and discussed their plan and decisions. The context of this strategy permitted the audience to feel the plan was more open, and often questions were raised (and a buzz session employed). The community was more fully committed than ever to a successful project.

Advantages and Disadvantages

Advantages of the fishbowl are that it:

1. Stimulates interaction among a group of experts (however classified) while others listen.

2. Allows non-participants to observe the roles individuals play in the group process.
3. Brings a topic and its discussion before the group.

The major disadvantage of the fishbowl is that it:

1. May be threatening to some people.

Force Field Analysis

Analyzing a problem promotes solutions that are viable. The "force field analysis" is one such approach that encourages careful analysis by delineating the forces both for and against successful implementation. Needs assessment steering committees will find this to be a useful technique in their own planning for completing the assessment and later in considering alternative solutions. It can also be used by groups attempting to identify goals for the school and in analyzing needs with respect to those goals. A diagram of a force-field format is shown in Exhibit 68.

A statement of the problem is written at the top of the force-field format sheet. A statement of current conditions is written within the vertical column in the middle of the diagram. The column on the right side of the format is used to write a description of the way things will be when the problem is solved or, more explicitly, the goal of the analysis. Two major columns are reserved for listing "Forces For" and "Forces Against" the achievement of this goal. Forces for achieving the goal are events that will move things from where they are now to where they ought to be. Likewise, forces that might work against solving the problem are recorded in the column labeled "Forces Against." The arrow (→) is used cryptically to denote forces for and (←) is used to label "Forces Against."

After completing the force field, an analysis of individual items is made. The forces that cannot be changed are deleted before deciding which forces to work on. "Forces Against" are ranked in order of difficulty in changing. Likewise, "Forces For" are prioritized. Each is then considered in turn. Two companion questions are asked: "What can be done to

Exhibit 68: Force Field Analysis

PROBLEM STATEMENT

Forces For→	Now	← Forces Against	Goal
Listed in this column are forces that would assist in goal attainment.	Statement of conditions as they currently exist	Listed in this column are forces that are against achieving the goal	

minimize the forces against goal achievement?" and "What can be done to *enhance the forces for* goal achievement?" The strategies ultimately selected draw on responses to both of these questions.

Advantages and Disadvantages

Advantages of force field include these factors:

1. Forces issues into the open.
2. Recognizes unchangeable circumstances.
3. Provides means for analyzing ways to eliminate those things which prevent a goal accomplishment.

The disadvantages of force field are as follows:

1. Is subjective in nature.
2. May not define all aspects of a problem.
3. May oversimplify relationships in the problem.

Summary

For a needs assessment to be effective, it should involve as many persons as possible in formulating goals and determining needs. It also needs to project the future. This chapter has dealt with a number of techniques which can be used to involve needs assessment participants and to look into the future. Futures-oriented techniques collect information in order to look at alternatives for policy-making. These techniques are action-oriented and deal with realistic life situations rather than with hypothetical problems.

The Delphi technique seeks opinions, judgements, and consensus from a wide array of individuals by using the mail. Cross Impact Analysis looks at the interrelatedness of events while Cross-Purpose Matrix views goals in this same perspective as well as forces individuals to examine the strategies for their attainment. Simulation/Gaming permits participants to see how their ideas will fit into a particular situation before it is tried in real life. Trend Extrapolation uses present and past trends to predict the future. Scenario writing calls for generation of possible futures. Historical Analogy compares the past with the present in order to plan the future more effectively.

Group process techniques aim to involve a large number of people, soliciting their ideas and input. Brainstorming provides an unrestrained environment so that people feel free to offer suggestions and solutions to problems. Buzz Sessions structure a group situation so as to provide for maximum individual participation. Fishbowl is another means for eliciting ideas from individuals in a group. Force Field analysis forces people to look graphically at forces for and against the solution to a particular problem.

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10

Developing Instrumentation for Needs Assessment

A major task in needs assessment is the selection, modification, or development of instruments appropriate for the data to be collected. Two factors related to the task are decisions regarding (1) *the variables associated with the people, programs, and organizational structures which are* the data sources for needs assessment; and (2) *the instrument formats appropriate for the specific information required.* Discussion of instrumentation is organized around these two factors.

Variables associated with the data sources have been identified through an analysis of needs assessment models and instruments. These variables are introduced in the first section and listed in Appendix A. Categories of instrument formats are described and illustrations of instruments using those formats are included in the second section of this chapter. A third section identifies format types appropriate for categories of variables that may be helpful in selecting or developing instruments.

Variables of the Study

The first factor to consider in designing and/or developing instruments is the specification of the variables to be included in the study. A wide array of variables has been used in previous needs assessment studies, a number of which are listed in Appendix A. Drawn from an analysis of completed needs assessments, this list is designed to stimulate others to the wide range of variables that may be considered.

Each variable in Appendix A is preceded by a box to assist needs assessors in checking those variables with promise for their own study. Variables are organized according to the three targets of needs assessment—people, programs, and organizations. Each of the three categories is further divided as shown in Exhibit 69.

An illustration of how these variables may be displayed and how they may be translated into instruments is discussed in Chapter 5. Most of the variables specified in Appendix A may involve more than one collection format and method. After identifying variables, the next stage is to determine which procedure would provide the most reliable and valid data in the most expeditious manner.

Instrument Format

Designing instrument formats involves two related procedures: *collecting data* and *recording data*. Inherent in decisions about these two procedures are questions about the types of data to be collected and the types of analysis to be used.

Data Collection Procedures. Riley (1963) identifies three primary procedures appropriate for collecting data relative to the variables in a needs assessment. These methods are *Direct Observation*, *Questioning*, and *Documentary Analysis*. Although all three procedures are appropriate for needs assessment, each provides different types of information.

Direct Observation. This data collection procedure involves watching, listening, and recording. The properties—actions, physical traits, interactions, or products—of subjects being studied are observed and recorded. Direct observation focuses only on the objective properties of variables. No effort is made to record the underlying orientations (intent, perceptions, causes, attitudes, or meanings) of the properties being observed (Riley, 1963, p. 185).

Direct observation is a procedure extensively used by social scientists to study human behavior. Educational researchers utilize the procedure to study the behaviors and interactions of individuals within the school setting. In direct observation, the training of the observer is of utmost importance. The observer is actually part of the observation instrument (Remmer,

Exhibit 69: Categories of Variables

- I. *People*
  - A. *Student Variables*
    - 1. Personal Characteristics
    - 2. Attitudes, Values, Interests
    - 3. Goals and Priorities
    - 4. Behavior
    - 5. Knowledge
    - 6. Sociological Context
  - B. *Teacher and Professor Variables*
    - 1. Personal Characteristics
    - 2. Attitudes toward Students, School, and Programs
    - 3. Goals and Priorities
    - 4. Competence
    - 5. Behavior
  - C. *Administrators*
    - 1. Personal Characteristics
    - 2. Attitude toward Students, School, and Programs
    - 3. Competence
  - D. *Parents and Community*
    - 1. Personal Characteristics
    - 2. Current Conditions
    - 3. Attitude toward Students and Schools
    - 4. Goals and Priorities
    - 5. Sociological context

- II. *Programs*
  - A. *Curricular Programs*
    - 1. Content and Sequences
    - 2. Strategies and Methods
    - 3. Resources
  - B. *Lesson, Unit and Module*
    - 1. Content and Sequence
    - 2. Strategies and Methods
    - 3. Resources

- III. *Organization*
  - A. *Governance*
    - 1. Policies
    - 2. Composition
  - B. *Administration*
    - 1. Personnel
    - 2. Facilities
    - 3. Students
    - 4. Instruction
  - C. *Management Climate*
    - 1. School Satisfaction
    - 2. Interpersonal Relations

1963, p. 330); and for this reason, reliability and validity of observations are affected by the extent to which the observer can record data accurately and inclusively.

Sources of error in direct observation lie in the potential for bias as observers' perceptions influence the selection and recording of information and the extent to which the variables are affected or changed by the observation (Riley, 1963). Both of these sources of error are particularly important in the study of human behavior. Observers are human, and their observation of behavior is affected to some extent by their own attitudes, emotions, and perspectives. For this reason, recorded actions are always subject to interpretation by the observer. In any situation in which human beings are observed, their actions most likely are influenced to some extent by the presence of the observer or by the fact that subjects know they are being observed (the Hawthorne effect). It is difficult to determine if observed behavior is *typical* behavior or if it has been altered in some way by the conditions of the data collection situation.

Another disadvantage of observation discussed by Riley (1963, pp. 186–187) is the necessary limitation in scope by the physical capabilities of the observer. The number of variables and cases that can be observed by a single person or a team is limited. The types of behavior that can be observed, the number of subjects, the number and types of events are limited by the fact that every subject cannot be observed all the time, and everything that is said, done, used, or produced cannot be recorded. Observations apply only to actions taking place in the present. Inferences cannot be made that the behavior under observation is *typical* behavior unless several observations under similar conditions are made across an extended period of time.

Questioning. According to Riley (1963, pp. 189–190), questioning is a means of collecting data by *asking* individuals about the variables being studied and/or by recording the individual's response to the problem or situation. Questioning reveals the way individuals perceive events, actions, and interactions; how they feel about them; how they explain them; and by what criteria they evaluate them. Questioning can also reveal knowledge about content, processes, communications, events, and products. This is the basic method used in educational testing to determine achievement, attitudes, and aptitudes. Questioning is particularly appropriate for collecting data about orientations as these properties do not lend themselves to direct observation.

Several limitations and sources of error are associated with Questioning (Riley, 1963, pp. 189–190). In most cases, questioning an individual about some action, interaction, or event is not possible until after the fact. Since almost all data are ex *post facto*, the reactions, feelings, and interpretations may be altered by the passing of time, by discussion with other individuals, or by the intervention of other events. Data collected are specific to the subject, and controls must be exerted to the extent that representativeness is desired, or the responses of one individual are generalized to several individuals. Another concern is how responses are altered by the data collection situation. Responses may be altered by the wording and the interpretation of the questions, by whether the questions are in written or oral form, and by individuals' reactions to the data collection situation.

Documentary Analysis. This data collection procedure makes use of information that is already available in some form. Either artifacts or documents may be used as data sources. Information may be in raw form (e.g., letters, diaries, photographs, and products) or it may have been previously compiled or formally recorded in legal documents, such as deeds, marriage certificates, vital statistics, court proceedings or such records as census, school, and employment. Documents and artifacts can be obtained from individuals, libraries, and educational or governmental institutions and agencies.

Documentary Analysis focuses on *events that have occurred already*. For this reason, several advantages and disadvantages are inherent in the procedure (Riley, 1963, p. 254). One of the advantages is that data may be collected about past events to allow for the stability of variables. It is possible to collect data across time, thus establishing changes or trends. Many documents or artifacts were not produced for data collection purposes, so sources of error associated with data collection may be lessened or eliminated. A major advantage is in the time and resources that may be saved when compared with the collection of new data. In this way, vast amounts of data about numerous variables may be collected at relatively little cost. The present use of computers for data storage and retrieval has vastly reduced the time and cost involved in data collection related to multiple variables.

Riley (1963, p. 254) identifies obvious disadvantages associated with the procedure. One is that complete data about the variables may not be available or may not be available in a form meaningful to the problem. Much time may be required for locating and assembling data sources and in sorting information relative to the studied variables. If data are recorded, the accuracy of the data must be assumed since there is no way to assess its validity or reliability. Finally, data collectors may have to reject much of the available information simply because they are not able to establish its limitations.

Data Recording Procedures

Two basic procedures are employed for recording data. Information pertaining to variables may be *described* or *numerically defined*. Data obtained through description are qualitative; that is, the purpose is to record the nature of the variables in the greatest detail. There is no attempt to assign a value to the properties described.

Numerically defined data, on the other hand, involve the assignment of meaningful numerical values to the variables or their characteristics. Meaningful numerical values are determined through measurement according to some type of scale and to careful definition of variables in relation to it.

Interval scales and *ratio scales* are used in numerical definition (Ferguson, 1971, p. 14). Interval scaling is used when variables or their characteristics have been defined to the extent that they can be aligned along a continuum (such as a number line). The assumption is made that distances between points on the continuum are equal, so that the distance between point 1 and point 2 is the same as the distance between point 2 and point 3. Variables assigned the value of 4 possess a defined characteristic to a greater extent than variables assigned the value of 3. The difference between variables 4 and 3 is equal to the difference between variables assigned the values of 2 and 1. Interval scales do not have a true zero point because it is impossible to define the total absence-variable being measured. For example, given all the forms that classroom interaction might take, it is impossible to say that any one individual in the classroom is not interacting. An arbitrary zero point may be defined (individual A does not interact in a certain way within a specified period of time). Time and Fahrenheit and Celsius temperature measurements are examples of interval scales (Ferguson, 1971, pp. 13–14).

Ratio scales make the assumption of an absolute zero point. All assigned values represent distances from this point of natural origin. Ratio values may thus be assigned so that it is impossible to say a variable assigned the value of 4 possesses a defined characteristic twice the extent of a variable assigned the value of 2. Length, weight, and "numerosity of aggregates" are measured with ratio scales. Using weight as a variable, one individual may be said to weigh twice as much as another individual (Ferguson, 1971, p. 14). If the situation is carefully defined, it is also possible to say that Room A with 20 chairs has twice the value of Room B with 10 chairs (both of these rooms are initially compared with Room C which has no chairs).

Two other scales—nominal and ordinal—are often used in identifying variables. In nominal scaling, numerals are used as a naming device, and no value is implicit in the numeral assigned. In nominal scaling, a numeral may be used to identify subjects on the basis of the possession of a certain characteristics. Blonde hair may be given the arbitrary label of 1 and brown hair the label of 2. Subjects may be assigned to one category or the other on the basis of the characteristic. No inferences can be drawn about the value of the numerals given, and no degree of difference can be assumed.

An ordinal scale is used to assign values greater than or less than variables. No attempt is made to define the degree of difference. Ordinal variables may be ranked according to defined characteristics. Individuals are often placed in order according to observed differences in height. This is an example of an ordinal scale if no effort is made to determine the exact degree of difference (Ferguson, 1971, p. 13). Individuals may also be ranked according to their expressed intensity of values, perceptions, or emotions. However, without further careful definition, no assumptions can be made about differences in the degree of intensity.

Authorities generally agree that data using a nominal scale are descriptive data. There is some disagreement, however, about whether or not ordinal data are descriptive or numerical (see Ferguson, 1971, p. 14 and Erickson, 1970, pp. 10–11). A general rule that can be used in distinguishing among scales is the type of mathematical operations which can be performed. Nominal data allow no mathematical operations. Ordinal data allow only rank-ordering. Interval data allow for performing the mathematical operations of addition and subtraction while ratio data allow addition, subtraction, multiplication, and division (Erickson, 1970, pp. 10–11).

Describing, as a data recording procedure, allows for the recording of the specific nature, characteristics, or qualities of a variable. Numerical definition allows variables to be compared across subjects by the degree to which certain characteristics are present. An important comparision between the two types of data is that descriptive data provide information about the content of the variables. Numerical definition provides information about the degree or extent to which the variable is present in a selected case. For example, if classroom interaction is the variable under study, description would focus on the content and context of interaction. Who interacted with whom, about what subjects, and under what conditions as well as the specific reactions of individuals during interaction could be recorded. Numerical definition focuses on the quantity of interactions. The number of times one individual interacts with another, the amount of time devoted to a certain type of interaction, and perhaps the total number of interactions is recorded. In this way, interactions can be measured, but the specific content and context of interaction is disregarded.

Both types of data recording procedures yield important information for a needs assessment, though numerical definition is used the most. Numerical definition is more convenient to record; mathematical and statistical procedures may be used; and data are more easily displayed for interpretation and reporting. However, the preoccupation with numbers may eliminate important information about schools and their components. In-depth description of the behavior, perceptions, and characteristics of a few individuals may yield more important and relevant information than the necessarily general information provided through quantification. The use of numerical definition may also be premature given the present level of sophistication in the measurement of human behavior.

Types of Instrument Formats

By examining the categories formed by the interactions of data collection procedures with recording procedures, it is possible to analyze and describe the types of instrumentation formats useful for needs assessment. These interactions are illustrated in Exhibit 70.

As the interactions indicate, there are potentially six types or categories of instrument formats:

1. Direct Observation using description as a recording procedure.
2. Direct Observation using numerical definition.
3. Questioning requiring descriptive responses.
4. Questioning using numerically defined responses.
5. Documentary Analysis in which information is described.
6. Documentary Analysis in which information is numerically defined.

Needs assessments have used all six categories of instrument formats. Examples of each type are included in this section.

Direct Observation/Descriptive

This type of instrument format is most often referred to as an *Observation Record*. Observation records are used in collecting data about social systems (such as classrooms) when the

Exhibit 70: Interactions of Data Collection and Recording Procedures

Data Collection Procedure	Recording Procedures	
	Description	Numerical Definition
Direct Observation	(1)	(2)
Questioning	(3)	(4)
Documentary Analysis	(5)	(6)

intent is to collect as much information as possible about individuals, groups, and their interactions. Data collection often focuses on events as a means of organizing observations. Events are distinct from one another in time and have identifiable initiatory, consummatory, and closing phases (Biddle, 1967, p. 341). An attempt is made to record every important feature of the event, including the actors, the content, the context, and the materials used. Events are described in terms of their sequence in relation to one another and in relation to the acts occurring within each event.

Observation records can yield a great deal of information and are useful for identifying problem areas and variables which may require closer scrutiny. They are also helpful in identifying such variables as group affiliation, group leaders (formal and informal), organizational structures, and interaction patterns. As such, this format may be particularly useful for general needs assessments and for collecting and recording planning information. Ethnographic records are being used more frequently in educational research and promise to be an effective tool for needs assessment studies.

Because observation records are time-consuming and nonspecific, several strategies have been used to delimit observations and to focus on specific variables. A *Stenographic Record* is an example of an observation record which focuses on verbal and non-verbal interaction. It can be a complete record of everything said or it can be selective, choosing only those interactions of particular interest. In one study, all nouns and pronouns were classified according to their referent—the speaker or others. The questions asked by a teacher in a class discussion can be recorded, or everything a child says (or is said to the child) may be recorded.

Some formats have been developed to simplify the recording process and to eliminate sources of bias related to observer selectivity. In these formats the variable to be studied is defined (prior to observation) in terms of the characteristics to be observed. Formats are developed to allow categorization of observations as they occur. An example of this format is the *Sign Category System* (Good and Brophy, 1973, p. 337). The characteristics to be observed are specified in advance of observation, and the observer simply tallies their occurrence. This format is shown in Exhibit 71.

Other symbols beside tallies may be used to give more meaning to observations. For example, Boyan *et al.* (1973, p.

Exhibit 71: Using Tallies to Record Behavior
Source: Good and Brophy, 1973, p. 337

TEACHER BEHAVIOR	Number
Teacher asks question	𝍸 𝍸 III
Teacher gives directions about process	𝍸 II
Teacher explains concept	IIII
Teacher corrects process	II

267) used a notational key to categorize student behavior:

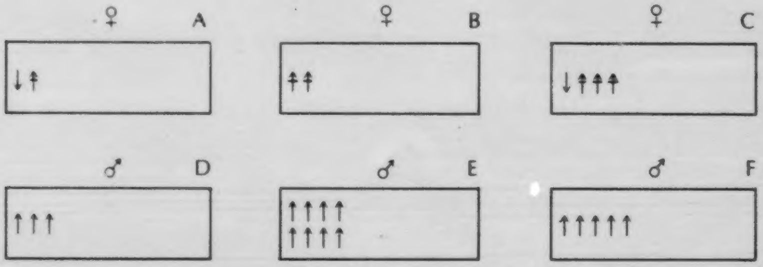
↑ = Student raises hand and was called on.
⇞ = Student raises hand, but was not called on.
↓ = Student was called on, but did not raise hand.

The instrument format allows for the description of specific students in terms of the predetermined behaviors, as shown in Exhibit 72.

Exhibit 72 also uses plotting or mapping when observations are keyed to specific locations within the observation setting.

Exhibit 72: Notational Instrument to Categorize Behavior
Source: Boyan et al., 1973, p. 267

Observation Instrument (This chart presents the raw data results for the six students in this class.)

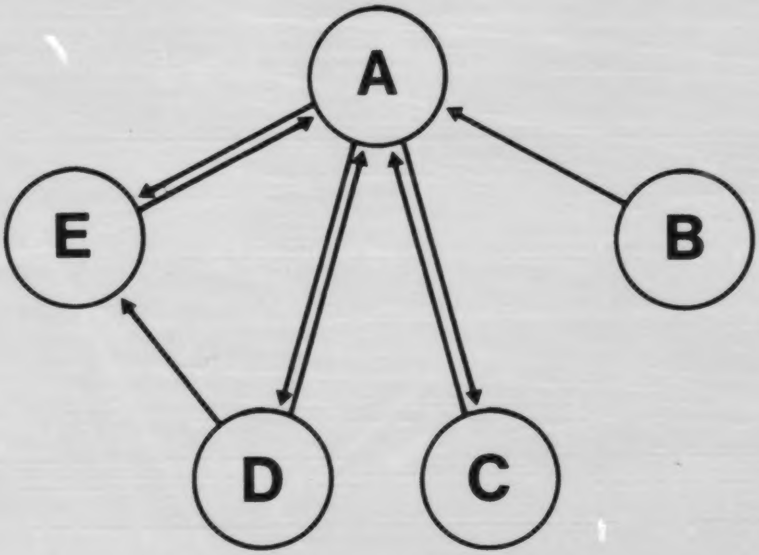


Descriptions of interactions are often recorded in this format. Mapping requires preliminary observations to determine the location of individuals before data collection begins or the preliminary structuring of groups so that specific individuals are assigned to exact locations. Once this is accomplished, interactions are recorded by drawing arrows from the initiator of interaction to the object of interaction as illustrated in Exhibit 73.

Mapping allows for assigning specific observations to individuals and can provide information about the focus of interaction and interaction patterns. Movements of individuals may also be mapped if a graphic representation of the physical environment is first developed. A sequence of numerals may be used to mark points on the map illustrating an individual's movements—in sequence—from one point in the physical environment to another.

Sequences of interactions or behaviors may also be described. Sequential numerals may be used on the interaction

Exhibit 73: Classroom Mapping



map to indicate which interaction occurred first, second, etc. Another method for indicating sequence is by developing a list of anticipated behaviors and assigning a sequence code. An example of this format is shown in Exhibit 74.

Exhibit 74: Classroom Discussion Behavior

Teacher asks question	1	
Teacher calls on student		
Student responds	2, 4	8
Teacher indicates that answer is correct		
Teacher calls on another student	3	7
Teacher clarifies student response		9
Teacher asks student to clarify response	5	
Teacher rephrases question		
Teacher gives cue to correct response	6	

Patterns of behavior can be revealed through use of this format. However, it is important to note that the numerals assigned have no meaning other than sequence and are thus descriptive, not quantitative.

These examples of formats are illustrative of those used for describing observations. Comprehensive description of observations is a time-consuming task. The more the focus is delimited and the recording procedure simplified, the more information is lost. In developing instruments of this type, decisions must be made about the purpose of data collection and the variables to be observed. Further decisions must be made about the scope of observation and the extent to which recording procedures can be simplified without violating the purpose of observation.

Two means of measuring observations have been used extensively by educators. These are (1) using rating scales as a means of assigning value to observations and (2) combining time as a unit of measure with cumulative observations.

Rating Scales. Good (1973, pp. 468–469) defines rating as "an estimate, made according to some systematized procedure, of the degree to which an individual person or thing possesses any given characteristic . . .," and rating scales as " . . . a device used in evaluating products, or attitudes, or other characteristics of persons rated."

In developing rating scales, behaviors to be observed are carefully defined in terms of their characteristics. A value is assigned to represent the degree to which the characteristics are present, and these values are arrayed along a continuum from "Not Present" to "Present to a High Degree." Numerals are placed at points along the continuum to indicate the degree to which characteristics are present. An example of this type of rating scale is shown in Exhibit 75. Use of this format requires a rater to observe the defined behavior, to judge the degree to which it is present, and to record the judgement on the appropriate point of the scale.

Exhibit 75: Typical Rating Scale

	NOT OBSERVED	OCCASIONALLY	FREQUENTLY	ALWAYS
Teacher gives positive feedback to student response	0	1	2	3

A variation of this type of format assigns indicators and non-indicators of the behavior to opposite ends of the scale and uses more numerals as points on the scale. Using indicators and non-indicators helps define the behavior more explicitly while using more points on the scale requires observers to use finer discrimination among indicators. This type of format is illustrated in the Classroom Observation Record developed by Ryans (1960, p. 861), as shown in Exhibit 76. In this instrument, adjectives describing opposite behavior characteristics marked the extremes of the continuum. These characteristics were further defined in terms of indicators; for example, indicators for the scale, pupil apathetic-alert behavior, are included in Exhibit 77.

Exhibit 76: Classroom Observation Record

Source: Ryans, 1960, p. 861

Pupil Behavior									Remarks:
1. Apathetic	1	2	3	4	5	6	7	N	Alert
2. Obstructive	1	2	3	4	5	6	7	N	Responsible
3. Uncertain	1	2	3	4	5	6	7	N	Confident
4. Dependent	1	2	3	4	5	6	7	N	Initiating
Teacher Behavior									
5. Partial	1	2	3	4	5	6	7	N	Fair
6. Autocratic	1	2	3	4	5	6	7	N	Democratic
7. Aloof	1	2	3	4	5	6	7	N	Responsive
8. Restricted	1	2	3	4	5	6	7	N	Understanding
9. Harsh	1	2	3	4	5	6	7	N	Kindly
10. Dull	1	2	3	4	5	6	7	N	Stimulating
11. Stereotyped	1	2	3	4	5	6	7	N	Original
12. Apathetic	1	2	3	4	5	6	7	N	Alert
13. Unimpressive	1	2	3	4	5	6	7	N	Attractive
14. Evading	1	2	3	4	5	6	7	N	Responsible
15. Erratic	1	2	3	4	5	6	7	N	Steady
16. Excitable	1	2	3	4	5	6	7	N	Poised
17. Uncertain	1	2	3	4	5	6	7	N	Confident
18. Disorganized	1	2	3	4	5	6	7	N	Systematic
19. Inflexible	1	2	3	4	5	6	7	N	Adaptable
20. Pessimistic	1	2	3	4	5	6	7	N	Optimistic
21. Immature	1	2	3	4	5	6	7	N	Integrated
22. Narrow	1	2	3	4	5	6	7	N	Broad

The utility of rating scales as a means of quantifying observations is highly dependent upon the definition of the behavior *and* the points of the continuum. With this type of

Exhibit 77: Indicators of Apathetic-Alert Pupil Behavior for the Classroom Observation Record
Source: Ryans, 1960, p. 861

1. Apathetic-Alert Pupil Behavior

APATHETIC	**ALERT**
1. Listless	1. Appeared anxious to recite and participate
2. Bored	2. Watched teacher attentively
3. Entered into activities half-heartedly	3. Worked concentratedly
4. Restless	4. Seemed to respond eagerly
5. Attention wandered	5. Prompt and ready to take part in activities
6. Slow in getting underway	

format, it is not possible to determine the degree of difference between ratings given. For this reason, data obtained from rating scales are limited to analyses appropriate for ordinal scales and, in the strictest sense of the word, may be descriptive in nature. Caution should be exercised in selection of analysis procedures, and interpretation should take into consideration the limitations of data.

Further limitations are associated with the format. Ratings are not records of observations; they are records of the judgements of the observer. Observers are required to interpret behaviors, actions, interactions, and products in order to make judgements. Regardless of the instrument's precision, exact measurement of the observation is impossible. The quality of the measurement is dependent upon the expertise of the rater and the extent to which multiple raters agree upon the values assigned to observations.

Time as a Unit of Observation. Several instrument formats have combined time with frequency of observation as a way to measure observations. In this format, observations are made for a specified period of time (e.g., 15 minutes), and observations are recorded at intervals during the time unit. Observations may focus on discrete behaviors or on categories of behavior. Following observation, recordings for each behavior or category are totaled and percentage of time devoted to that behavior is calculated. Since a time unit is specified, an arbitrary zero point can be established. By recording at specified time-intervals (points), equal intervals between recordings can be assumed. As long as behavior by time is the unit of measure, data obtained through this format can be considered interval data.

A widely used version of this format is the *Observation Schedule and Record* (OScAR). This instrument (Medley and Mitzel, 1963, pp. 278–282), which makes use of a list of teacher and student activities observed for a specified unit of time (3 periods of five minutes each), is illustrated in Exhibit 78.

At the end of each five-minute interval, all behaviors that had been observed are recorded by checking that behavior. No attempt is made to record the frequency or duration of the behaviors within the interval, although cumulative totals of check marks are calculated for the three five-minute observations. Thus, for each behavior, the range of scores is 0 (behavior did not occur) to 3 (behavior was observed in each time interval).

Instrument formats have been developed which encompass complex verbal behaviors. Flanders' Interaction Analysis Category System (Flanders, 1970) illustrates this format. The observations are discrete categories of student and teacher verbal interactions. Categories of teacher behavior are further classified as to whether they have direct or indirect influence on students. Observations are recorded every three seconds. The Flanders Categories are shown in Exhibit 79.

With this format it is possible to calculate the percentage of time devoted to each type of behavior. Using the percentage "scores," variables may be compared (such as the percentage of time spent in questioning as compared to the percentage of time spent in giving directions). It is also possible to determine predominant teaching style (ratio of teacher direct/indirect behavior) and the locus of interaction (ratio of teacher behavior/student behavior). Because observations may be con-

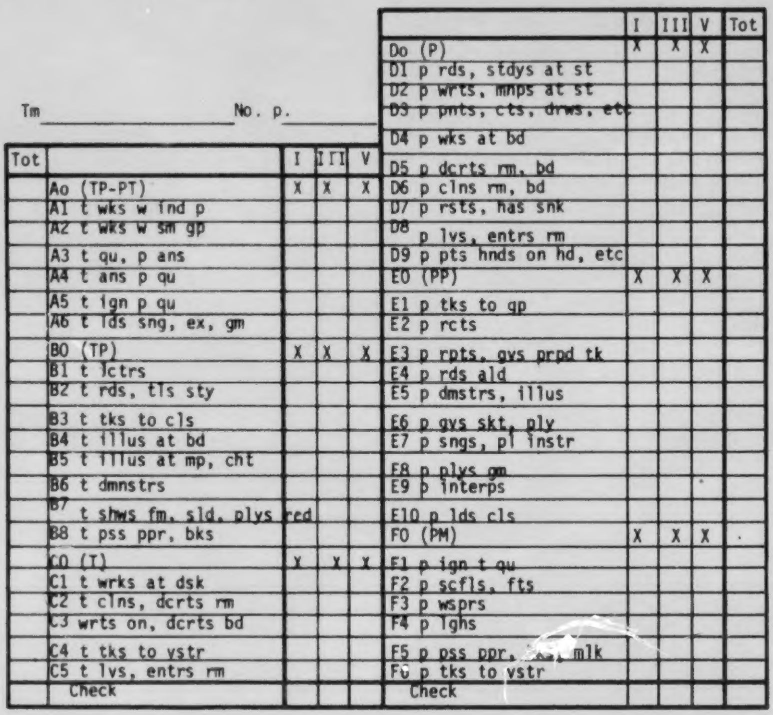


Exhibit 78: Observation Schedule and Record (OScAR)
Source: Medley and Mitzel, 1963, p. 278

Tm ____________ No. p. ____________

Tot		I	III	V
	Ao (TP-PT)	X	X	X
	A1 t wks w ind p			
	A2 t wks w sm gp			
	A3 t qu, p ans			
	A4 t ans p qu			
	A5 t ign p qu			
	A6 t lds sng, ex, gm			
	B0 (TP)	X	X	X
	B1 t lctrs			
	B2 t rds, tls sty			
	B3 t tks to cls			
	B4 t illus at bd			
	B5 t illus at mp, cht			
	B6 t dmnstrs			
	B7 t shws fm, sld, plys rcd			
	B8 t pss ppr, bks			
	C0 (T)	X	X	X
	C1 t wrks at dsk			
	C2 t clns, dcrts rm			
	C3 wrts on, dcrts bd			
	C4 t tks to vstr			
	C5 t lvs, entrs rm			
	Check			

	I	III	V	Tot
Do (P)	X	X	X	
D1 p rds, stdys at st				
D2 p wrts, mnps at st				
D3 p pnts, cts, drws, etc				
D4 p wks at bd				
D5 p dcrts rm, bd				
D6 p clns rm, bd				
D7 p rsts, has snk				
D8 p lvs, entrs rm				
D9 p pts hnds on hd, etc				
E0 (PP)	X	X	X	
E1 p tks to gp				
E2 p rcts				
E3 p rpts, gvs prpd tk				
E4 p rds ald				
E5 p dmstrs, illus				
E6 p gvs skt, ply				
E7 p sngs, pl instr				
E8 p plys gm				
E9 p interps				
E10 p lds cls				
F0 (PM)	X	X	X	
F1 p ign t qu				
F2 p scfls, fts				
F3 p wsprs				
F4 p lghs				
F5 p pss ppr, [illegible] mlk				
F6 p tks to vstr				
Check				

sidered interval data, variables may be compared across subjects and subjects may be compared on the basis of overall percentage scores. This format is one of the most useful for quantifying observations.

If behavioral categories are used, they must be defined carefully in terms of the behaviors included. Categories must be mutually exclusive so that there is no ambiguity and so that observed behaviors can be easily assigned to only one category. Categories should also be exhaustive—including all behaviors of the type possible within the category.

Trained observers increase precision in recording data, thus increasing inter-observer correlation and instrument reliabil-

Exhibit 79: Flanders' Interaction Analysis Categories
Source: Flanders, 1970

Teacher Talk	1. Accepts Feeling
(Indirect Behavior)	2. Praises or encourages
	3. Accepts or uses ideas of students
	4. Asks questions
(Direct Behavior)	5. Lectures
	6. Gives directions
	7. Criticizes or justifies authority
Student Talk	8. Student talk—response
	9. Student talk—initiation
	10. Silence or confusion

Exhibit 80: Coding Chart for Group Behavior

	Number of Students		
	On Task Behavior	*Questionable*	*Off-Task Behavior*
1.	20	3	2
2.	17	4	4
3.	17	3	3
4.	16	3	6
5.	22	3	0
6.	23	3	0
7.	22	2	0
8.	22	2	1
9.	23	2	0
10.	22	2	1

ity. An advantage of this type of format is that it can encompass numerous categories, thus many general behavioral observations. It can include non-verbal as well as verbal behavior. Because behaviors are quantified, numerous analysis procedures are possible. Observations may be made of relatively large groups, although they focus on the interactions of one individual with the entire group (student behavior is treated collectively).

A variation of this format is illustrated in Exhibit 80. During each of ten observations, the number of students exhibiting on-task, questionable, and off-task behavior is recorded.

Categories of student behaviors are identified and observed at fixed intervals (e.g., every three minutes) during a specified time unit (30 minutes). The individuals participating in behaviors related to each category are counted and the total number of individuals is recorded, by category, for each time interval. This type of format allows for the quantification of group behavior. Percentage scores may be calculated for each category on the basis of the total number of individuals engaging in a given category of behavior for each interval or for the total time unit. Scores for individuals cannot be calculated, but groups may be compared on the basis of the category scores.

Direct observation, whether quantitative or descriptive, is a valuable data collection procedure for needs assessment. While illustrative formats have focused primarily on teacher and student behavior, the procedure is equally viable for gathering information about the community, institutional organization, and programs. Direct Observation/Description may be used to determine the types of businesses, industry, religious institutions, housing patterns, recreational facilities, and types and quality of shopping facilities of the community. Other information such as the dispersal of ethnic groups, differences in quality of housing, distances from convenience shopping also can be obtained.

The organizational structure of educational institutions may often be revealed through observation. Following a student, teacher, or administrator through a day at school and recording activities and interactions can reveal such information as the basic structural units of the school, the formal and informal leaders of groups, formal and informal sanctions and rules for behavior, and availability and accessibility of resources.

Checklists, rating scales, or stenographic records focusing on programmatic activities (instead of interactions or behaviors) can identify discrepancies between stated and real objectives, the emphasis of instruction, dominant teaching strategies used, reactions of students to instruction, and much other valuable information about programs.

Finally, observers recording the interaction of groups involved in planning and conducting needs assessment might provide insights about problems, patterns, and types of interaction that may be helpful in facilitating the needs assessment.

Questioning/Descriptive

Several types of instruments make use of the Questioning/Descriptive format. Such instruments may be administered orally and require oral responses (interviews) or they may be in written form requiring individuals to record their own responses in some form.

The format is particularly appropriate for obtaining information related to the "underlying orientations" (Riley, 1963, p. 184) of individuals. Questioning/Descriptive focuses on the subjective nature of actions, interactions, events, conditions, behaviors, or products as they are perceived by the individuals involved. This format is frequently used by needs assessors to identify the attitudes, values, and perceptions of individuals about people, programs, and organizational structures of educational institutions.

The unstructured response is a format frequently used to obtain this type of information. Exhibit 81 illustrates this format.

Exhibit 81: Questionnaire for Administrators
Source: Alaska Teacher Corps Project, 1978

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5. What interested you in seeking your present position and how did you go about getting it?
12. What is your attitude toward the use of "projects" as part of the small high school curriculum?
14. What do you think the special characteristics of your students are which should be taken into consideration in a small high school program?

While focusing on specific types of information relevant to the needs assessment targets, the questions allow for an unrestricted response which combines facts with opinions. The same types of questions may have been asked by an interviewer. In an interview, individuals could have asked for clarification so that any bias associated with question interpretation might have been reduced. However, individuals may feel less free to express opinions in an interview. Recording oral responses also presents a problem, as recording devices (such as a tape recorder the interviewer writing while subject is talking) may further bias the response. If interviewers are used, they should be trained so that all interviewers interpret the questions in the same manner and approach the interview situation similarly.

Another illustration of this format is provided in Exhibit 82. This is referred to as a sentence-completion format.

Exhibit 82: Sample Format for Sentence Completion Instrument

1. On days when I'm feeling bad, students ______________________________

2. When students misbehave, I ______________________________

3. My principal is ______________________________

4. Some of the disadvantages of teaching are ______________________________

The "Teacher Concerns Statement" developed by Fuller and Case (1971) is another example of this format. The Teacher Concerns Statement consists of an unruled 8" by 10½" sheet which is headed by the following instructions:

> When you think about your teaching, what are you concerned about? (Do not say what you think others are concerned about, but only what concerns you now.) Please be frank.

Preservice or inservice teachers use the blank portion of the paper to write a paragraph or more about their concerns.

These formats utilize "open-ended" questions. Such formats are styled to provide a wide range of information about the topic and are less restrictive than more structured formats which may eliminate important information. These formats are particularly appropriate for identifying feelings and concerns, and careful interpretation can reveal problems that should be addressed. No information is discarded and analysis requires careful scrutiny of all information given.

A variation of this format limits the range of responses, thus the amount of time required for response and analysis. Open-ended statements are used but are limited to one word. The assumption is that the word used to describe certain aspects of the educational environment will reveal the underlying feelings and attitudes of the respondent. Veldman and Peck developed a sixty-two statement format which is completed by the insertion of a single word in each statement (Exhibit 83). Statements may focus on a range of variables related to students, administrators, support personnel and services, organization, parent and community influence, and program goals and processes.

Exhibit 83: Sample Format
for Single-Word Completion Instrument
Source: Veldman and Peck

2. Children need ____________________.

9. The key to good teaching is ____________________.

11. Children usually ____________________.

30. Teachers should ____________________their students.

Another format used for descriptive data requires respondents to list responses. This type of format is illustrated by Exhibit 84.

A variation of the listing format asks respondents to list and then rank the items listed. Exhibit 85 depicts the variation suggested by Kiser *et al.* (1972).

This format allows for a range of responses yet focuses them on a specific area of concern. More structured formats have been used to reduce the range of responses by requiring respondents to choose from among alternatives. These formats usually include a listing of some type, and respondents simply check the response most suitable for them. An illustration of this format is the "Learning Preference Profile" developed by the C. F. Kettering Foundation (Exhibit 86). The instrument

Exhibit 84: Sample Formats for Listing Responses
Source: I, University of Hawaii, 1978;
II, Washington West School District, 1977;
III, Houston Independent School District, 1977

Sample Formats for Listing Responses

I:

3. List specific kinds of help (workshop, consultant, material resources, financial support, etc.) that you feel would enable you to increase your effectiveness in fulfilling any of the responsibilities listed above.

II:

Part C: Things which would increase your job satisfaction:

1. ______________________________

2. ______________________________

3. ______________________________

4. ______________________________

5. ______________________________

III:

C. If you feel additional courses or programs should be offered, list them by level.

Elementary level: ______________________________

____

____

Junior High level: ______________________________

____

____

Senior High level: ______________________________

____

____

Exhibit 85: Sample Format for Listing and Ranking
Source: Kiser *et al.*, 1972, p. B-12

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1. List those items proposed and discussed at student government meetings (or brought to you in your role with the student government) which you perceive as being concerns or problems of our students.
2. Rank the items listed above according to their priority among students by placing a 1 in front of the highest priority of concern, a 2 for second priority of concern, etc.

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asks students to check media and task preferences related to instruction.

This format has also been used to identify preferred changes (University of Hartford, 1978), as shown in Exhibit 87.

Areas of interest may be identified through use of the checklist format, illustrated by the University of Maine/Orono (1978), where respondents mark an O to indicate their interest or potential interest in a workshop (Exhibit 88).

Another variation of the format is used to identify teacher educational needs. A Teacher Corps Proposal (California State University—Fullerton, 1976) included a checklist and combined it with an open-ended format which allowed teachers to explain responses (Exhibit 89).

The checklist format has been widely used to obtain demographic data related to students, community, and educational personnel. Classes of responses are listed in Exhibit 90, and respondents can be asked to check or circle the response most descriptive of themselves.

Questioning may also be used to describe underlying structures as well as underlying orientations. The sociogram is an illustration of this format. In developing a sociogram, questioning is used to identify "friends" or "status-people" within a group, e.g., "List your friends in this class"; or "List the influential leaders in this group." Friendship or status patterns are then plotted on the basis of the number of times each individual is named and of the reciprocity of identifica-

Exhibit 86: Learning Preference Profile

Source: I/D/E/A

DIRECTIONS: Check the learning preference factor that seems most appropriate for you. Check one answer in each set.

Reward Preference Factors:

☐ Certificates/ribbons, awards
☐ Grades
☐ Graduation credits
☐ Praise from parents
☐ Praise from fellow students
☐ Praise from teachers (privately)
☐ Praise from teachers (publicly)
☐ Publicity
☐ Self-satisfaction
☐ Sense of accomplishment

Activity Preference Factors:

☐ Avid reader
☐ Listener
☐ Like to write
☐ Prefer to talk over ideas
☐ Discussions — student led
☐ Discussions — teacher led
☐ Field trips
☐ Laboratory experiments
☐ Research
☐ Simulation
☐ Tutoring

Media Preference Factors:

☐ Audio cassettes
☐ Audio tapes
☐ Books
☐ Computer-Assisted Instruction (CAI)
☐ Charts/graphs/maps
☐ Films
☐ Filmstrips
☐ Models
☐ Overhead transparencies
☐ Periodicals
☐ Phonograph records
☐ Programmed texts
☐ Resource files
☐ Slides
☐ Television — commercial
☐ Television — instructional
☐ Video tapes

Grouping Preference Factors:

☐ Large groups for lectures or movies
☐ Small groups (from 3 to 10)
☐ Paired learning — learn together
☐ Tutorial — teach or help another person learn
☐ Independent — by oneself

Task Preference Factors:

☐ Self-imposed task
☐ Imposed task

☐ Ambiguous task
☐ Specific task

☐ Little guidance
☐ Moderate guidance
☐ Much guidance

☐ Not difficult
☐ Moderately difficult
☐ Very difficult

☐ Sequential
☐ Nonsequential

☐ Problems of immediate concern
☐ Problems of long-range or future concern

☐ Problems that have short-range solutions
☐ Problems with long-range solutions

Student Characteristics:

☐ Gets down to work fast
☐ Is slow to get started

☐ Works best in the morning (day person)
☐ Works best in the afternoon or evening (night person)

☐ Catches on to ideas quickly
☐ Needs "think time" to comprehend new ideas

☐ Likes to do homework
☐ Endures homework
☐ Hates homework

☐ Likes to finish tasks
☐ Is not bothered by unfinished tasks

☐ Puts off tasks
☐ Likes to finish tasks early

☐ Prefers mental activity (reading, writing)
☐ Prefers "doing" things (building, drawing, sports)
☐ Prefers verbal activity (drama, speech)

Student Characteristics (continued)

☐ Is usually prompt
☐ Is usually tardy

☐ Is a neat, precise, well-organized person
☐ Is organized but in a carefree way
☐ Is a little bit disorganized

☐ Is healthy
☐ Has health problems

☐ Is an introvert
☐ Is an extrovert

Teacher Preference Factors:

☐ Male
☐ Female
☐ No preference

☐ Formal dress
☐ Casual dress
☐ No preference

☐ Under 40
☐ Over 40
☐ No preference

☐ Organized
☐ Disorganized
☐ No preference

☐ Structured
☐ Nonstructured
☐ No preference

☐ Specialist
☐ Generalist
☐ No preference

☐ Keen sense of humor
☐ Down to business
☐ No preference

☐ Personal interest in students
☐ Formal
☐ No preference

☐ Same out-of-school interest
☐ Different out-of-school interest
☐ No preference

☐ Strict disciplinarian
☐ Moderate disciplinarian
☐ Lax disciplinarian
☐ No preference

☐ High expectation
☐ Moderate expectation
☐ Low expectation
☐ No preference

Comments: ____________________

Exhibit 87: Project TeaCor Needs Analysis

Source: University of Hartford, 1978

A. CHANGES

In the space provided please check any changes, if any, which you think have significantly altered, or may alter, the nature of your job.

____ 1. A change of schools (not buildings)

____ 2. Our new school building

____ 3. A change of assignments (grade level, specialization)

Exhibit 88: Checklist Format

Source: University of Maine/Orono, 1978

	Very Interested	Somewhat Interested	Not Interested	Will Attend	Might Attend	Will Not Attend
1. Design or redesign curriculum materials that will promote a positive set of assumptions about minorities and their cultures	____	____	____	____	____	____

Exhibit 89: Checklist with Open-Ended Format

1. Do you understand strategies necessary for effective teacher/parent/community relations?

Yes____ No____ Partially____ (explain) ______________________________

____

4. Are you knowledgeable of basic bilingual education philosophies?

Yes____ No____ Partially____ (explain) ______________________________

____

____

Exhibit 90: Demographic Checklist

---

1. AGE
    - a. 20-24 years
    - b. 25-29 years
    - c. 30-34 years
    - d. 35-39 years
    - e. 40 years or older

2. SEX
    - a. male
    - b. female

3. RACE/ETHNIC GROUP
    - a. Anglo/Caucasian American
    - b. Black/Afro American
    - c. Asian/Pacific American
    - d. Native American
    - e. Hispanic/Chicano American

4. WHERE HAVE YOU LIVED DURING MOST OF YOUR CHILDHOOD?
    - a. rural
    - b. small town (under 10,000)
    - c. small city (10,000-50,000)
    - d. city (over 50,000), inner city
    - e. city (over 50,000), suburbs

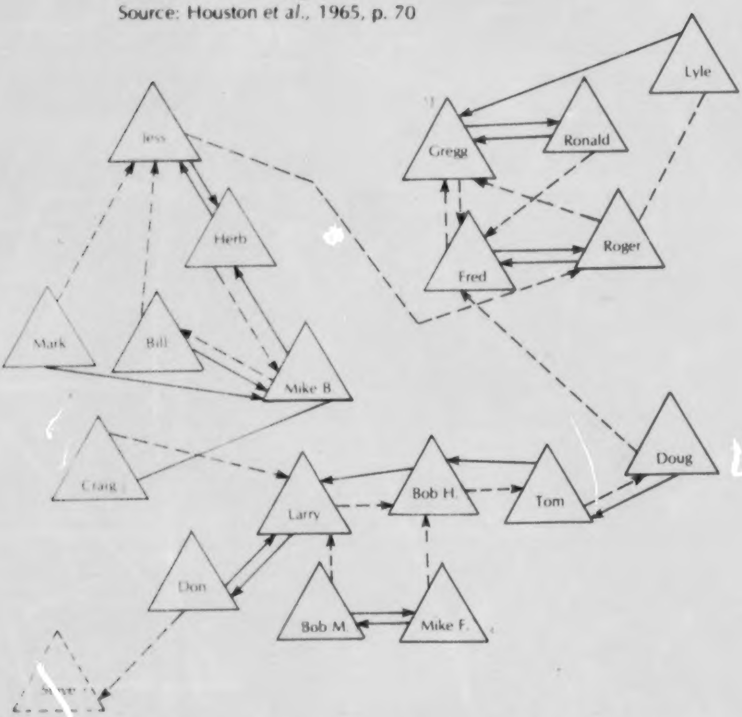
---

tion (Riley, 1963, pp. 174–176). Exhibit 91 illustrates a sociogram.

Each person in the group is identified by a numeral. Arrows pointing toward a circle or triangle indicate that another person has named the individual as "friend" or "leader." Arrows pointing from a circle or triangle indicate who that individual named as "friend" or "leader." This format is valuable in identifying informal group leaders, isolates, and perceived interactions of groups. It is a way of relating observed interactions with perceived group structures.

With these types of formats, the range of responses is limited. Time required to respond to and analyze responses is reduced, and analyses may be more easily displayed. As with all descriptive data, the more the instrument format restricts

Exhibit 91: Sociogram
Source: Houston et *al.*, 1965, p. 70


Lyle
Jess
Gregg
Ronald
Herb
Roger
Fred
Mark
Bill
Mike B.
Craig
Doug
Bob H.
Tom
Larry
Don
Bob M.
Mike F.
Steve

responses, the more information is eliminated, discarded, or disregarded. Data collectors should be aware of such restrictions and make decisions about these formats on the basis of the information required.

Questioning/Numerically Defined

This format is the most commonly used in all areas of education data collection. While numerous instruments exist, relatively little variation in the formats is used for quantifying data. The formats presented in this section are representative of those used for collecting data about numerous needs assessment variables. However, the examples have been selected as much as possible from those developed primarily for needs assessment purposes.

Exhibit 92: Illustration of a Ranking Format for Collecting Data

Source: Richard L. Curwin and Barbara S. Fuhrman, *Discovering Your Teaching Self–Humanistic Approaches to Effective Teaching*, ©1975, pp. 28-29. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, New Jersey.

Below are 22 values that might be displayed in various ways in a classroom. In your ideal classroom, which are your top three? Place a '1' next to the quality you value most in your classroom, a '2' next to the second most important, and a '3' next to the third most important.

_____ Freedom
_____ Rigidity
_____ Self-Direction
_____ Personal Choice
_____ Quiet
_____ Chaos
_____ Laughter
_____ Passivity
_____ Decision Making
_____ Fear
_____ Purposefulness
_____ Dogmatism
_____ Orderliness
_____ Favoritism
_____ Creativity
_____ Alienation
_____ Mutual Respect
_____ Privacy
_____ Equality
_____ Dominance
_____ Fairness
_____ Love

Most of the formats make use of some type of rating scale in which respondents assign numerals to indicate the degree or intensity of their response. Ranking is a variation of this format as is the use of "multiple-choice," "true-false," "yes-no," and "semantic differential" types of responses.

Ranking. A frequently used format for identifying educational values and goals requires respondents to assign a numerical value to rank the values and goals in order of their importance. Exhibit 92 is an illustration of this format suggested by Curwin and Fuhrmann (1974) for a workshop activity.

With this format, the most important values for a school might be identified in terms of the collective rankings of teachers, students, and parents. Goals may be similarly ranked or may be defined in terms of perceived importance by using a format illustrated by the "Team Leaders Needs Assessment and Resource Identification Instrument," California Teacher Corps Network. This format was developed to identify the most important needs areas and the team leaders who could serve as resources for them (Exhibit 93). A procedure similiar to this is used in the Phi Delta Kappa Needs Assessment System to prioritize goals. See Exhibit 29 for an illustration of the rating form and the accompanying description of the process.

These types of formats allow for quantification on the basis of perceived priority. Because they require respondents to make finer and finer discriminations among choices, they may be a more valid way of obtaining perceptual data than are some others. Another format offers multiple responses and requires respondents to choose the one that best fits their opinion or perception. An illustration of this format (Kiser *et al.* 1972, B-8) is shown in Exhibit 94.

This format is often varied by omitting the numerals before responses. In analyzing the responses, however, numerals are assigned. This format is illustrated in the "Parent Opinion Schoolwide Survey" developed by the Learning Community High School Change Program (Exhibit 95).

These formats allow for more specific definition of the responses; thus, information yielded may be more meaningful. However, to make comparisons among variables in terms of their relative importance is difficult. Variables may be compared if a consistent rating scale is used for all items. In this type of format, numerals represent points on a number-line. Points indicate a range of potential responses, and respondents select the one most representative of their feelings, opinions, or perceptions. Exhibit 96 illustrates this format (State University of New York at Albany, 1978).

This format has been used to assess teachers' personal and professional attributes as perceived by students. An example of this format, provided by the Student Analysis of Teachers (University of Massachusetts, 1978), illustrates how data are obtained to develop a composite or individual profile for teachers (Exhibit 97).

Placing the rating scale alongside each item is a variation that may decrease time required to complete the instrument as well as possible errors related to respondents' memory of scale-point descriptions. Exhibit 98 illustrates the Student

Exhibit 93: Team Leaders Needs Assessment and Resource Identification Instrument

Source: California Teacher Corps Network, 1978

The instrument requires that you give ***each*** *description one point, then go over the list a second time and give those things you would like training in a second point, go through the list a 3rd time and give the more critical topics a third point. Do this twice more for a total of five times. When you are through the following must be true:*

1. *Each descriptor must have at least one point.*
2. *At least one descriptor must have five points.*
3. *You must have used exactly the number of points specified at the top of each part of the instrument.*
4. *No descriptor should have more than five points.*

The following steps may help in completing the Needs Assessment Instrument:

1. *Give* ***each*** *item one point.*
2. *Go through the list a second time and give each* ***important*** *item a second point.*
3. *Go through the list a third time and give the* ***most*** *important of the items with 2 points a third point.*
4. *Go through the list a fourth time and give the most important of the items with 3 points a fourth point.*
5. *Go through the list a fifth time and give the most important items with 4 points a fifth point.*
6. *Count up all points given and delete points or add points to reach the total at the head of each list.*

PART I (60 points for this part)

Points	**Functional Descriptor**	**Resource**
________	1. Team Building	________
________	2. Supervision of Interns	________
________	3. Documentation of Internship	________
________	17. Facilitating Interns' Entry into Community	________
________	24. Gaining Status with Collaborating University	________

PART II (60 points)

	Topical Descriptor	
________	1. Multicultural Education	________
________	2. Bilingual Education	________
________	23. Motivation for Inservice Education	________
________	24. Instructional Development	________

Exhibit 94: Illustrative Multiple Response Format

Source: Kiser, *et al.*, 1972, p. B-5

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12. In general, how often do the teachers and officials in his school treat your child fairly?

    _____ 1) Always treated fairly
    _____ 2) Usually treated fairly
    _____ 3) Treated fairly about half the time
    _____ 4) Seldom treated fairly
    _____ 5) Never treated fairly
    _____ 6) I have no opinion

14. How much help does the school usually give your child in solving his social problems?

    _____ 1) All or almost all of the help he needs
    _____ 2) Considerable amount of the help he needs
    _____ 3) Little of the help he needs
    _____ 4) I have no opinion

Opinion Questionnaire developed by Portland State University (1978).

Another illustration of this format is provided by the "Student Needs Assessment" developed by the Navajo Teacher Corps Demonstration Project (Northern Arizona University, 1978). In this format, respondents are asked to agree, disagree, or indicate no position by circling the appropriate response (Exhibit 99).

Many formats using rating scales include the scale in conjunction with the item. Points on the line are defined, and numerals spaced at equal intervals are included. Respondents may be asked to circle the appropriate numeral, or they may be asked to mark points along the line. In many cases, distances between numerals or points are assumed to be equal, and responses are assumed to represent equal-interval data. This assumption is questionable. The format does, however, allow for finer discriminations among responses and for responses to be compared on the basis of ratings given. One illustration of this format is provided in the "Final Evaluation of the Whitaker-

Exhibit 95: Parent Opinion Teacher Survey

Source: I/D/E/A

8. Do you feel that what your son or daughter is learning will help him or her in the future?

____ Very definitely
____ Somewhat
____ Probably not
____ No

9. Do you feel that with my help your son or daughter experiences more success than failure?

____ Yes, definitely
____ Probably yes
____ Probably no
____ No

10. Are you satisfied with my grading system?

____ Yes
____ Needs some improvement
____ Needs major improvement
____ No, should be totally changed

11. Do you feel I give your son or daughter some choice in what he or she is going to learn?

____ Frequently
____ Sometimes
____ Seldom
____ No

12. How do you rate any contacts such as phone calls, notes, or letters you have had with me?

____ Beneficial
____ Helpful
____ Adequate
____ Ineffective
____ Have not contacted you

13. After completing one of my courses, does your child have a greater desire to learn more about the subject than before he entered the course?

____ Yes, he is more interested in learning
____ There has been definite improvement of attitude toward the subject
____ There has been little improvement in attitude toward the subject
____ No, it "turned him off"

14. How do you feel about the formal rules and regulations I require the students to follow?

____ More lax than I would allow if I were teaching
____ Seem about right
____ More formal than needed
____ Much too strict

15. Do you feel that I have helped your child to become a more confident, self-directed, responsible citizen?

____ Very definitely
____ Somewhat
____ Little contribution
____ No

16. Have I helped your child identify his or her strengths

____ Very definitely
____ Generally
____ Somewhat
____ No

17. Generally, how do you feel about me as a teacher?

____ I have very positive feelings about you
____ Generally I approve of you
____ I feel rather neutral
____ I have some negative feelings
____ I believe you are in the wrong business

Other Comments: ____________________

____
____
____
____
____
____
____
____
____
____
____

Exhibit 96: Sample Rating Scale

Source: State University of New York—Albany, 1978

Directions: In the column provided, enter a number (1, 2, 3, 4, or 5) after each goal indicating how important you think it is that students achieve that goal in this school district.

Goal is: 1 – Inappropriate for schools
2 – Of marginal importance
3 – Of average importance
4 – Of considerable importance
5 – Extremely important

GOALS	IMPORTANCE
1. Develop basic skills in reading, language arts, and mathematics.	
2. Gain a general education by developing a fund of information and concepts, skills, special interests and abilities.	
3. Learn how to examine and use information.	

Columbia Middle School Spring Planning Retreat" (Portland State University, 1978). An eleven-point rating scale was included for each item with the extreme ends of the scale defined. Participants were asked to rate aspects of the retreat by placing a mark on the scale. The items and scales are illustrated in Exhibit 100. Responses were analyzed by recording the numerical values assigned by all respondents for each item and computing mean values. In this way, a "score" for each item was determined and used to judge the success of the workshop.

This type of format has been used for teachers' self-ratings in relation to teaching competencies. In the Teacher Competency Inventory, developed for the Houston Needs Assessment System (Houston and Bain, 1973), points along the scale are defined in terms of "indicators" of the competency. Respondents indicate their level of performance along the scale in relation to the indicators that best describe their own behavior (Exhibit 101). Rating scales defined in this way allow for more definite interpretation of scale points (and competency) by both respondents and data analysts. Both validity and relia-

Exhibit 97: Student Analysis of Teachers
Source: University of Massachusetts, 1978

PART A

For each part of the statements in Part A, choose the response which best shows how you feel your teacher is doing. Write the number of the best answer in the space next to the statement. Your opinion counts. Please be honest. THANK YOU!

1. **This teacher does an excellent job in this area. (No improvement needed)**
2. **This teacher does a *good* job in this area. (Little improvement needed)**
3. **This teacher does an *average* job in this area. (Some improvement needed)**
4. **This teacher does a *poor* job in this area. (A lot of improvement needed)**
5. **This is not a necessary thing for the teacher to do in this area.**

____1. The way the teacher listens to students' questions.

____2. The way the teacher listens to students' comments.

____3. The way the teacher helps me if I don't understand something.

____4. The teacher's patience.

____5. The way the teacher explains things.

---

bility of instruments are more easily determined when scales are defined to this extent.

Some formats have utilized two rating scales for each item so that variables may be rated along two dimensions. The Teacher Corps Project at the University of New Hampshire (1978) used this format (Exhibit 102) to obtain the opinions of teachers about the importance and present condition of needs areas. A number of similar instruments are illustrated in Chapter 6. Exhibits 39, 40, 41, and 42 and their related discussions suggest a range of formats and approaches.

Another type of scale which may be used for needs assessments is the Guttman Scale. Riley (1963, pp. 464–499) de-

Exhibit 98: Student Opinion Questionnaire/ Scale Point Descriptions

Source: Portland State University, 1978

1. Not very often
2. Sometimes
3. Often
4. Most of the time

1. I invite school friends to my house	1	2	3	4
2. Other boys and girls at this school bother me	1	2	3	4
3. My friends want to go on for more education after high school.	1	2	3	4
4. There is a lot of laughter when our class is together.	1	2	3	4

Exhibit 99: Sample Using Agree/Disagree Dichotomy

Source: Northern Arizona State University, 1978.

A 3	U 2	D 1	1. My teachers tell us what we will learn before we study the lesson.
A 3	U 2	D 1	2. My teachers do *not* make me interested about learning something new.
A 3	U 2	D 1	3. My teachers tell us what work we are supposed to do.

Exhibit 100: Ranking Scale for Assessing Retreat

Source: Portland State University, 1978

1. To what extent were the purposes for having the retreat achieved?
Very little ______________________________ Very much
0 1 2 3 4 5 6 7 8 9 10

2. Assuming adequate follow-up, how valuable was the retreat for the school?
Not valuable ______________________________ Very valuable
0 1 2 3 4 5 6 7 8 9 10

Exhibit 101: Teacher Competency Inventory
Source: Houston and Bain, 1972

Competence: *Administers and interprets asessment techniques; standardized tests and sociometrics.*

From 0 • 1 2 3 4 5 6 7 8 9 • Towards

A. Administers standardized tests only when scheduled by central administration.	A. Administers standardized tests according to directions in accompanying test manuals.	A. Selects and administers standardized tests when information is needed on individual students.
B. Files test results in individual student folders.	B. Reads test results for individual students.	B. Understands and uses in interpreting test terms such concepts as reliability, validity, standard deviation, standard score, national norms, local norms.
C. Uses standardized test data for evaluation of individual.	C. Uses test data to determine the nature of the class.	C. Knows and uses the variables that can affect individual scores when interpreting test results.
		D. Uses test information as only part of total evaluation.

scribes this scale in detail. Basically, use of the Guttman Scale assumes that individual response can be categorized into cells in accordance with the presence (+) or absence (−) of prescribed indicators. If a minimum of two such indicants is used, numerals may be assigned to scale points on the basis of the cumulative presence or absence of indicants. In other words, for any group of respondents, the following combinations of indicators may be present: ++, +−, −+, −−. Thus, scores of 2,1,1,0 may be assigned and arrayed along an equal interval scale. The assumption is also made that for any ran-

Exhibit 102: Two-Dimensional Scale
for Rating Importance
and Present Conditions of Goals
Source: University of New Hampshire, 1978

The scales are as follows:

VI—Very Important
FI—Fairly Important
NI—Not Important
DK—Don't Know

G—Good
F—Fair
P—Poor
DK—Don't Know

20. Portsmouth Junior High School administrators' educational viewpoints are understood.	VI	FI	NI	DK	G	F	P	DK
21. Student involvement in the evaluation of programs.	VI	FI	NI	DK	G	F	P	DK
22. Our school reflects its school philosophy.	VI	FI	NI	DK	G	F	P	DK
23. Communication between reading teacher and classroom teacher.	VI	FI	NI	DK	G	F	P	DK
24. Students promoted on trial but not working out the first month could be returned to the previous grade.	VI	FI	NI	DK	G	F	P	DK

dom sample of a given population, response patterns will be evenly distributed among the cells in such a way that frequency of response patterns may be determined and the assumptions underlying the scale may be tested. An inservice education survey, "Needs Assessment Survey—Teacher Corps Cycle XII, University of Hartford" (1978), illustrates this approach (see Exhibit 103).

In this format, areas related to training programs are defined in terms of possible indicants, and respondents rate the degree to which each indicant would be necessary or destructive to the training program. The uniqueness of this format is that it utilizes the potential response patterns as scale-points, thus simplifying analysis. The scale may also be applied to other formats for which indicants have been empirically defined.

The Guttman Scale has been used widely for quantifying

Exhibit 103: Illustrative Guttmann Scale

Source: University of Hartford, 1978

PRIORITIES

(Please rate each of the following possible elements of an inservice training program in terms of its importance to your participation. Please check one of these columns for each factor).

CODE: ++ *A necessary* element of the program (i.e., if it were missing, I would not participate)
+ *A preferable* element of the program
0 *Neither* negative nor positive (doesn't matter to me)
– *A negative*, but not critical, element
– – *A destructive* element that would preclude my participation (i.e., if it were included I would not participate)

	necessary	preferable	neutral	negative	destructive
Credit options for training:	++	+	0	–	– –
University Credit					
Board credit					
No credit					
Other *(specify)*					
Types of monetary benefit for training:	++	+	0	–	– –
No tuition charge					
No registration fee					
Summer stipend					
Other *(specify)*					
Time at which the training would be offered:	++	+	0	–	– –
Before school hours					
During school hours					
Directly after school					
Late afternoon					
Evenings					
Weekends					
School vacations					
Summers					
Other *(specify)*					

attitudinal, achievement, intelligence, and social variables. One of the few scales that can be designed to meet the assumptions of interval scaling, it is a valuable tool for needs assessment.

In this section, examples of formats combining Questioning with Numerical Definition have been presented. Illustrative formats were primarily developed for needs assessment purposes, although many standardized tests which also use the format are available. These tests usually make use of a multiple choice format in which right and wrong answers are the primary definition of scale points. Although normal scores which allow individuals to be compared on the basis of their performance on the tests have been determined, the validity of the instruments for all populations has been questioned in the last few years. These instruments should be used with caution as a source of data for needs assessment.

Documentary Analysis/Descriptive*

The most available sources for Documentary Analysis/Descriptive data are teachers' and administrators' logs; anecdotal accounts of school and/or classroom events; teacher lesson plans; student work assignments; records of administrator-teacher, administrator-student, teacher-student, counselor-student, diagnostician-student, teacher-parent conferences; records or minutes of meetings related to various topics; procedural handbooks, or memoranda related to procedures. Textbooks, curriculum guides, and instructional materials are also sources of this type of data.

In this format, the focus is on the content, context, and descriptive properties of the variables under study. Teachers' and administrators' logs may be analyzed to determine the major activities engaged in over a period of time. Principals who perceive themselves as instructional leaders may find, through such an analysis, that they are devoting the majority of their time to correcting student behavior or completing administrative reports. Analysis of teacher lesson plans and student work assignments may reveal that teachers who believe themselves to be focusing on basic skills may be, in fact, reinforcing disruptive behavior or providing instructional activities that promote divergent thinking.

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*Virtually no illustrative formats have been identified for the categories of Documentary Analysis/Descriptive and Documentary Analysis/Numerically Defined. For this reason, discussion of the two formats is limited primarily to the sources of data and potential analysis procedures. All illustrative formats for guiding the collection and recording of data are contrived for the purposes of this discussion.

An analysis of the reports or minutes of conferences or meetings may reveal physical settings that do not lend themselves to open interaction or "screening" devices used to avoid discussion of critical topics.

In Documentary Analysis/Descriptive, interpretations are made on the basis of *unstructured* analysis. Clues to historical development of institutional practices, influence of important individuals, interplays of personalities, and geographical or

Exhibit 104: Teacher Anecdotal Record

Source: Teacher

In the following account, the teacher is describing the behavior of a pupil in the class. According to the teacher, this type of behavior is not unusual and the teacher is perhaps making a case for further action on the part of school officials.

Mon., Mar. 3, 1970. John Blue created another disturbance in class today. Another student took a pencil from his desk and John became almost hysterical. As indicated before, this is not untypical of John's behavior in the classroom. John yelled at the other student and at me when I tried to calm him down. I first tried to reason with him, telling him his behavior was very immature and that there was no cause to get so excited. He yelled back that I didn't care what happened to him and that if I didn't see that other students didn't bother him, he would have to take up for himself. Regardless of my attempts to calm John, he became more excited and I finally had to restrain him with force and virtually drag him to the principal's office. The entire incident greatly disturbed the other students and it was some time before we could settle down and get back to work. (1)

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(1). It is possible that the entire account is biased in favor of the teacher. John became "hysterical", "yelled", and had to be forceably restrained. The teacher was "calm" and "reasonable", and, even when having to "drag" John to the principal's office, and was concerned about the effects of John's behavior on the class. There is possibly some personality conflict between the teacher and John as indicated by the teacher's reference to John as immature and over-reacting to the incident. John obviously feels that the teacher is not going to protect his interests when another student is involved. John's perceptions may be fairly accurate as indicated by the lack of deference to the teacher's actions or reprimands regarding the student who took John's pencil.

sociological context of critical events may be obtained and their interrelationships inferred. Interpretations are primarily *inductive*; that is, given this information, what does it mean? Information is not systematically treated and no structure is imposed during data collection and analysis (although some pre-conceptualization usually guides the selection and recording of raw data). Analysis and interpretation is "generally rather loose and intuitive" (Riley, 1963, p. 242).

Reporting data consists of narrative descriptions of interpretations supported by raw data. One form, illustrated by Riley, uses raw data as the primary content of the report with introductions and footnotes containing interpretations. An example of this type of report is shown in Exhibit 104.

As evidenced by this illustration, interpretation is based on raw data. While interpretations will vary according to the perceptions of the data collector, inferences drawn must illustrate logical relationships. Data collected through this format may be biased by the perceptions of the collector, and collection may be time-consuming. However, use of the format can provide perspectives that may be important for needs assessment.

Documentary Analysis/Numerically Defined

In this format, data collection and analysis are far more structured. Some type of "model" is developed before data collection begins. School and college records, census records, attendance rosters and reports, financial reports, state or federal audits, membership rosters, student permanent record files, personnel files, student progress reports, evaluation reports, project reports, registration forms, and medical and psychological records are examples of sources of data for this format in *addition to those identified for Documentary Analysis/Descriptive.* Using this format, achievement data across several years may be collected and interpreted in terms of trends for individual students, defined groups of students, or for entire schools or school districts. Changes in institutional or community demographic patterns may be highlighted through longitudinal data. Programmatic data may be quantified and related to student achievement. Budgetary allotments may be related to the effectiveness of components of the institution. The use of such data is a powerful, seldom-used, and viable approach in needs assessment if care is exercised in collecting, quantifying, and analyzing it.

This type of format has been used to relate such variables as pupil achievement to ethnic background, economic status, and teacher characteristics. School attendance, overall achievement patterns, teacher job satisfaction, and school dropout rates have been related to the demographic makeup of the community. Use of existing data collected through this format can be extremely useful for needs assessment. Because so many data are already available and because use of such data can reduce the resource requirements for needs assessment, full consideration should be given to use of this format before decisions are made to collect new data.

Basically three variations of this format are used to facilitate the collection and recording of data. One variation consists of a listing of the type(s) of information to be collected with blanks to record the information. This format is particularly appropriate for collecting summarized data that has already been quantified, as shown in Exhibit 105.

Exhibit 105: Summarized Data Form
for Documentary Information

SUMMARY OF STUDENT INTELLIGENCE SCORES

Year	Range	School Enrollment
1969	67 - 154	1,026
1970	62 - 156	1,125
1971	64 - 160	1,008
1972	64 - 149	1,008
1973	66 - 139	1,003
1974	82 - 151	605
1975	85 - 161	636
1976	84 - 159	710
1977	85 - 161	703
1978	87 - 162	723

As illustrated, these data may simply be recorded from existing documents. The data to be recorded have been predetermined and can be recorded in summary form. This format can be used for recording data about many variables. Family income, average yearly income for the community, average daily attendance, student achievement scores, number of families residing in the community with school-age children, number of professional staff members, ages of students and/or professional staff, years of experience of staff, years of professional education for staff, and number of absences are only a few examples of data that have already been quantified in many schools.

This format also allows for preliminary analysis of data by recording data by groups. For example, the format in Exhibit 106 might be used to examine relationships between income level and average daily attendance.

Exhibit 106: Relationships between Income Levels and Student Attendance

INCOME LEVEL	NUMBER OF STUDENTS	AVERAGE DAILY ATTENDANCE	RATIO
Less than $10,000	356	297	.83
$10,000 - $20,000	678	660	.97
$20,000 - $30,000	454	448	.99
$30,000 - $40,000	215	209	.97
Over $40,000	58	42	.84

Groups may be formed on the basis of many factors, such as ethnicity, number of years in the school or community, grade level, sex, family characteristics, institutional affiliation, and membership in organized community groups. Data collection combinations can provide data appropriate for identifying correlations among numerous variables.

Another format variation makes use of coding of variables. In this format categories of content are identified and defined in much the same manner used for coding direct observations. Each category is explicitly defined in terms of indicants (Riley, 1963, p. 331). As with categories for Direct Observation, the categories must be exhaustive and mutually exclusive. Rules are established for assigning information to a specific category and are used as a guide in data collection. Instruments using this format consist of two parts: "(1) a code, or a set of code designations, made up of numerals, symbols, or names of categories, the code lists all the points or intervals or categories marked off on each dimension of each property. . . . (2) coding instructions which, on the one hand, define each dimension and its categories in terms of the conceptual model, and on the other hand, specify the kinds of data to be taken as indicants under each category" (Riley, 1963, p. 331).

In other words, development of this format requires (1) a conceptualization of the properties of variables; (2) explicit definition of variables in terms of their exhaustive indicants; (3) identification of variables in terms of some type of code—numerals, symbols, or category names such that specific cases can be classified into only one code designation; (4) coding instructions or the rules by which specific cases are assigned to one category or another. Information is examined to identify cases which meet the criteria for category assignment, and each case is coded (tallied) into the appropriate category.

A simple illustration of this procedure is the coding of individuals according to categories (levels) of income. Categories are specifically defined to include all cases of incomes within a given range and to exclude all cases that do not fit within a defined category. As specific cases are identified, they are examined to determine their "fit" with categories and tallied within those categories. This is illustrated in Exhibit 107.

Categories may be defined for any meaningful unit of information related to needs assessment. Leadership styles, teaching styles, categories of student achievement, and categories

Exhibit 107: Income Categories Used to Illustrate Tallies in Categories

Up to 10,000	10,000-20,000	20,000-30,000	30,000-40,000	above 40,000
卌 卌	卌 卌 卌	卌 卌 卌	卌 卌 卌	卌 卌
卌 卌	卌 卌 卌	卌 卌 卌	卌 卌 卌	卌 卌
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of parent interactions with schools are examples of types of categories that might be defined. Once categories are defined, data related to the categories may be obtained from a number of sources. For example, categories of parent interactions with schools may be defined and data obtained from teachers, principals, counselors, and nurses' records; from PTA attendance rosters; from school visitation reports kept by teachers or principals; or from "Back To School" sign-in sheets.

Categories might be defined and symbolized as shown in Exhibit 108. While these categories have not been empirically determined, they may be assumed to be inclusive and mutually exclusive for illustration purposes. With these definitions, existing documents can be examined to determine specific cases which fit into each category. A more systematic approach is to identify a random sample of parents, then to examine records to classify cases into each category. From this type of analysis, an overview of the types of parent interactions with the school could be determined.

Another variation of this format uses rating scales as a means of assigning values to the variables being studied. The rating scale is particularly useful for examining curricular materials and documents related to programs. Teacher lesson plans, for example, can be rated on the basis of inclusion of pre-determined desirable components, such as objectives, pre-assessment activities, variation of learning activities, and evaluation and feedback activities.

In developing such formats, the specific components of the variable to be studied are explicitly defined. Rating scales are

Exhibit 108: Categories of Information
for Needs Assessment

Parents who have had no recorded interactions with the school during the past _____ years. Indicants: These are parents who have neither contacted nor been contacted by the school; and who have not interacted with the school in such a way that they can be classified into any one of the following three categories.	1
Parents who have negative interactions with school. Indicants: Parents who come to school only when contacted about a problem. Parents who contact school only when there is a problem. (Problems may relate to student behavior, grades, truancy, absenteeism, illness, discipline, grade-placement, teacher-student conflict, pupil-pupil conflict, teacher-parent conflict, conflict between pupil and other school personnel, student use of drugs, smoking, dress & haircode violations, vandalism, excessive tardiness, fighting, disrespect to others, abusive language, leaving school without permission, refusal to accept punishment from school personnel, excessive punishment (or unjust punishment), objections to school rules or practices).	2
Parents who have positive interactions with schools. Indicants: Parents who seek contact with the school (and with whom contact is sought) when there is no student problem or conflict. (Such contacts may be in the form of school visits to discuss student progress, school curriculum or extra-curricular activities for students; PTA or PTO meetings or functions; school activities to which all parents are formally or informally invited—e.g., plays, programs, school visitation activities, culture fairs, open house, athletic functions, concerts, awards programs, field days, interscholastic league competitions; planning meetings for needs assessment or program development; volunteer activities, such as tutoring, sponsoring parties, driving students to school outings, giving talks or demonstrations in a curriculum-related area; sponsoring or coaching school events or teams; informational meetings related to some aspect of school functions—planning for school parties, cheerleader uniforms, etc.)	3
Parents who have both positive and negative interactions with school. Indicants: These are parties who have interactions which fit into *both* categories 2 and 3. Do not make judgments based on frequency of one type of interaction above the other type. If parent has had 10 positive contacts and only one negative contact, that parent is still classified into this category.	4

developed to quantify the components on the basis of absence, presence, and quality of desirable characteristics. For example, for objectives found in teacher lesson plans, a rating scale might be developed which defines points on the scale as shown in Exhibit 109.

Exhibit 109: Sample Rating Scale for Lesson Plans

0—Objectives not included.

1—Objectives included, but intended outcomes are vague or ambiguous, no performance critieria or conditions included.

2—Objectives clearly stated in terms of student behaviors.

3—Objectives clearly stated in terms of student behaviors and performance criteria.

4—Objectives clearly stated in terms of student behaviors, performance criteria, and conditions under which behavior should occur.

With this type of rating scale, in which successive ratings are based on an accumulation of desirable characteristics, it is relatively easy to make objective judgements in assigning ratings. Instruments including such scales may be used to collect data about a number of programmatic, organizational, and people variables that can be useful for a needs assessment. Such data can be obtained from a variety of sources which presently exist in documentary form.

These formats are illustrative of the types that can be used for quantifying data obtained through Documentary Analysis. While data obtained through this format are subject to the limitations described in earlier sections of this chapter, this format is certainly a viable and useful one for needs assessment. Vast quantities of data are already available related to educational institutions, the community, and their various components. These data should be considered as a means of conserving needs assessment resources. In addition, these data must be considered if a total picture of the targets of needs assessment is to be developed during the data collection phase.

In this section of the chapter, six different instrumentation formats have been discussed and illustrated. Each of these formats can provide useful data for needs assessment. While some formats are more appropriate for collecting information about some variables, it is not only possible but desirable to use combinations of formats to collect data. For example, the combination of Documentary Analysis/Numerically Defined and Direct Observation/Descriptive can provide a comprehensive overview of the demographic characteristics of the school or community. Student achievement data collected through use of the Questioning/Numerically Defined format can be verified through Documentary Analysis/Descriptive of student products, such as worksheets, reports, notebooks, or unit tests. A more thorough assessment of teacher competency can be obtained if both Direct Observation/Numerically Defined and student perceptual data obtained through Questioning/Descriptive are used. Again, it is emphasized that choice of instrument format is a matter of determining the "best fit" between information desired, the analysis and reporting procedures to be used, and appropriate formats.

Needs Assessment Instruments

In previous sections of this chapter, categories of variables related to the targets of a needs assessment are identified. Instrument formats have been discussed in terms of combinations of data-collection procedures with data-recording procedures. In the latter discussion, examples of needs assessment instruments were used to illustrate the formats and, to some extent, their appropriateness for some of the variables. Needs Assessors have been cautioned to make decisions about instruments in terms of which formats provide the most reliable and valid data in the most expeditious manner. In this section, formats that can be used to collect data about categories of variables are identified. In making selections, the advantages, disadvantages, limitations, and data yield for each format should be considered.

Exhibit 110: Categories of Variables

1—Direct Observation/Descriptive
2—Direct Observation/ Numerically Defined
3—Questioning/Descriptive
4—Questioning/Numerically Defined
5—Documentary Analysis/Descriptive
6—Documentary Analysis/ Numerically Defined

	Instrument Formats					
	1	**2**	**3**	**4**	**5**	**6**
I. PEOPLE						
A. Student Variables						
1. Personal Characteristics			x	x	x	x
2. Attitudes, Values, Interests			x	x		
3. Goals and Priorities			x	x		
4. Behavior	x	x			x	x
5. Knowledge			x			
6. Sociological Context			x	x	x	x
B. Teacher and Professor Variables						
1. Personal Characteristics	x	x	x	x	x	x
2. Attitudes toward students, school, programs			x	x		
3. Goals and Priorities			x	x		
4. Competence		x		x		x
5. Behavior	x	x			x	x
C. Administrators						
1. Personal Characteristics			x	x	x	x
2. Attitude toward people, school, programs			x	x		
3. Competence		x		x		x
D. Parents and Community						
1. Personal Characteristics			x	x	x	x
2. Current Conditions	x	x	x	x		
3. Attitude toward people, school, programs			x	x		
II. PROGRAMS						
A. Curricular Programs, Lesson Unit, and Module						
1. Content and Sequence					x	x
2. Strategies and Methods	x	x			x	x
3. Resources	x	x	x	x	x	x
III. ORGANIZATION						
A. Governance						
1. Policies					x	x
2. Composition		x		x	x	x
B. Administration						
1. Personnel		x		x		x
2. Facilities	x	x	x	x		x
3. Students			x	x	x	x
4. Instruction			x	x	x	x
C. Management Climate						
1. School Satisfaction	x	x	x	x	x	x
2. Interpersonal Relations	x	x	x	x	x	x

Exhibit 110 lists categories of variables. Instrument formats which may be used to collect data related to each category are identified in the columns on the right.

Summary

Two factors related to the selection and development of needs assessment instruments are determination of the variables associated with the people, programs, and organizational structures which are the targets of a needs assessment and the instrument formats appropriate for obtaining data about the variables. Categories of variables related to each of the targets have been identified. (Specific variables within each category are listed in Appendix A.) Specific variables and their indicators or properties constitute the *content* of the Needs Assessment instrument.

Six instrument formats have been identified based on the interactions of data-collection procedures with data-recording procedures. Themat types are (1) Direct Observation/Descriptive, (2) Direct Observation/Numerically Defined, (3) Questioning/Descriptive, (4) Questioning/Numerically Defined, (5) Documentary Analysis/Descriptive and (6) Documentary Analysis/Numerically Defined. All of these formats are useful for needs assessment, though some may be more appropriate than others for specific variables. Thorough data collection would probably require the use of all formats, particularly those employing Documentary Analysis.

Finally, a chart has been presented that should help needs assessors make decisions about instruments based on selection of variables and appropriate formats.

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APPENDIX A

Listing of Potential Study Variables

On the following pages are listed a number of potential variables for a needs assessment. Drawn from a survy of previous studies, this listing is designed to stimulate ideas in needs assessors. A box precedes each variable as a way to identify promising ones for your study.

Variables are organized according to sub-categories of the three targets of the needs assessment. Exhibit 110 (in Chapter 10) provides a perspective of this organization and a guide to locating variables.

I. People
  A. Student variables
    1. Personal characteristics
      ☐ a. Age
      ☐ b. Ethnicity
      ☐ c. Grade
      ☐ d. Religion
      ☐ e. Sex
      ☐ f. Place of birth
      ☐ g. Current address
      ☐ h. Length of time at current address
      ☐ i. Location and length of longest residence
      ☐ j. Number of siblings
      ☐ k. Birth order in family
      ☐ l. Mode of transportation to and from school
      ☐ m. Travel time to reach school
      ☐ n. Amount/necessity of outside work
      ☐ o. Punctuality
      ☐ p. Degree of responsibility displayed
      ☐ q. Speaking vocabulary
      ☐ r. Other

2. Attitudes, values, interests
    - ☐ a. self-concept
        - ☐ (1) As viewed by self
        - ☐ (2) As viewed from perspective of others
    - ☐ b. Locus of control
    - ☐ c. Feelings about peers—those of same race and those of another race
    - ☐ d. Cooperation with peers
    - ☐ e. Perceptions about school, transportation, community
    - ☐ f. Effect of parents' attitude toward academic excellence
    - ☐ g. Attitude toward school
    - ☐ h. Amount of reading time in the home
    - ☐ i. Amount of time spent watching television
    - ☐ j. Amount of study time
    - ☐ k. Participation in extracurricular activities
    - ☐ l. Attitude toward work, success
    - ☐ m. Willingness to sacrifice
    - ☐ n. Attitude toward property
    - ☐ o. Desire to learn
    - ☐ p. Alienation and estrangement
    - ☐ q. Other
3. Goals and priorities
    - ☐ a. Desire for higher education
    - ☐ b. College and career plans
    - ☐ c. Desire to excel
    - ☐ d. Preferred occupational level
    - ☐ e. Lifelong learning plan
    - ☐ f. Other
4. Behavior
    - ☐ a. Signs of overt and latent hostility
    - ☐ b. Incidence of laughter and anger
    - ☐ c. Disturbance in class
    - ☐ d. Vandalism
    - ☐ e. Withdrawal and non-participation
    - ☐ f. Response to strangers in school environment
    - ☐ g. Behavior in peer group in classroom and on the playground
    - ☐ h. Participation in school activities
    - ☐ i. Fighting
    - ☐ j. Harassment
    - ☐ k. Swearing
    - ☐ l. Name-calling
    - ☐ m. Arrests
    - ☐ n. Other
5. Knowledge
    - ☐ a. Cognitive abilities (sensorimotor, labeling, patterning, and attribution)
    - ☐ b. Pre-school attendance (nursery, kindergarten)
    - ☐ c. IQ

    - ☐ d. Verbal ability
    - ☐ e. Reading comprehension
    - ☐ f. Mathematics achievement
    - ☐ g. Learning problems
    - ☐ h. Learning styles
    - ☐ i. Listening skills
    - ☐ j. Communication skills
    - ☐ k. Other
  6. Sociological context
    - ☐ a. Type of dwelling (home, apartment, mobile home)
    - ☐ b. Size of dwelling (number of rooms)
    - ☐ c. Number of appliances in home
    - ☐ d. Number of persons living in home
    - ☐ e. Number of generations living in home
    - ☐ f. Type of community (urban, suburban, rural)
    - ☐ g. Head of household (male, female)
    - ☐ h. Languge spoken in home
    - ☐ i. Educational level of parents
    - ☐ j. Primary source of income for parents
    - ☐ k. Mother's occupation
    - ☐ l. Other

B. Teacher and professor variables
  1. Personal characteristics
    - ☐ a. Age
    - ☐ b. Ethnicity
    - ☐ c. Appearance
    - ☐ d. Personality
    - ☐ e. Marital status
    - ☐ f. Sex
    - ☐ g. Political affiliations
    - ☐ h. Grade or subject taught
    - ☐ i. Tenure
    - ☐ j. Geographic area of high school from which graduated
    - ☐ k. Teacher training institution attended—type of teacher training program
    - ☐ l. Highest degree held
    - ☐ m. Certification
    - ☐ n. Years of teaching service
    - ☐ o. Years spent teaching in minority situations
    - ☐ p. Years teaching in present school
    - ☐ q. Annual salary
    - ☐ r. Professional association membership
    - ☐ s. First entry as teacher or re-entering profession after absence
    - ☐ t. Attendance at summer institutes
    - ☐ u. Participation in inservice training
    - ☐ v. Position in formal power structure (team leader, head teacher, etc.)
    - ☐ w. Position in informal power structure
    - ☐ x. Other

2. Attitudes toward students, school programs
    - ☐ a. Alienation and estrangement
    - ☐ b. Feelings about school organization and leadership
    - ☐ c. Relationship with peers
    - ☐ d. Perceived locus of control and autonomy
    - ☐ e. Preferred student ability level
    - ☐ f. Preferred socio-economic background of student
    - ☐ g. Expectations for students to excel
    - ☐ h. Attitude toward ability grouping
    - ☐ i. Degree of sex bias
    - ☐ j. Attitude toward change
    - ☐ k. Concern for educational improvement
    - ☐ l. Self-image
    - ☐ m. Enthusiasm
    - ☐ n. Degree of adaptability to innovation
    - ☐ o. Support of school administration
    - ☐ p. Support of Affirmative Action Program
    - ☐ q. Racial bias
    - ☐ r. View of students as persons
    - ☐ s. Respect for teachers of other subject areas or grade level
    - ☐ t. Pride in teaching
    - ☐ u. Other
3. Goals and priorities
    - ☐ a. Plan to teach until retirement
    - ☐ b. Career and educational plan
    - ☐ c. Job satisfaction based on salary
    - ☐ d. Job satisfaction based on working conditions
    - ☐ e. Other
4. Competence
    - ☐ a. Knowledge of subject matter
    - ☐ b. Reading of educational journals
    - ☐ c. Hours per day spent in lesson preparation
    - ☐ d. Time spent in counseling
    - ☐ e. Hours per day spent in classroom teaching
    - ☐ f. Participation in school activities
    - ☐ g. Communication skills
    - ☐ h. Classroom management skills
    - ☐ i. Time management ability
    - ☐ j. Decision-making style
    - ☐ k. Problem-solving approach
    - ☐ l. Planning ability (goal formulation, instructional design, evaluation, etc.)
    - ☐ m. Professional participation
    - ☐ n. Ability to work with people from different ethnic groups, cultural backgrounds, and socio-economic environments
    - ☐ o. Supervision of aides and volunteers
    - ☐ p. Understanding of different cultures
    - ☐ q. Development of teacher-made materials
    - ☐ r. Student evaluation
    - ☐ s. Motivational techniques

- ☐ t. Wide variety of teaching strategies
- ☐ u. Recognition of specific skill deficiencies
- ☐ v. Knowledge of corrective strategies
- ☐ w. Use of outside resources (resource persons, field trips, etc.)
- ☐ x. Ability to develop good self-concept in children
- ☐ y. Languages spoken
- ☐ z. Ability to specify behavioral objectives
- ☐ aa. Other

5. Behavior
   - ☐ a. Employment of strategies for turning kids "on"—observation of action opportunities, individual feedbacks, communication patterns
   - ☐ b. Evidence of warm, positive regard for all students
   - ☐ c. Grading style
   - ☐ d. Interaction with teacher aides
   - ☐ e. Individualized instruction—sensitive to different learning styles
   - ☐ f. Positive reinforcement of culturally different values
   - ☐ g. Use of seating patterns—teacher controlled or free choice of students
   - ☐ h. Use of alternative organizational patterns, such as teaming, grouping, open classroom, tracking
   - ☐ i. Flexibility
   - ☐ j. Support for exceptional child in regular classroom
   - ☐ k. Rapport with parents
   - ☐ l. Home visits and telephone calls
   - ☐ m. Ability to handle discipline problems
   - ☐ n. Accuracy of record keeping
   - ☐ o. Other

B. Administrator variables

1. Personal characteristics
   - ☐ a. Age
   - ☐ b. Ethnicity
   - ☐ c. Sex
   - ☐ d. Marital status
   - ☐ e. Appearance
   - ☐ f. Personality
   - ☐ g. Undergraduate institution attended
   - ☐ h. Highest degree held
   - ☐ i. Credit beyond highest degree held
   - ☐ j. Socio-economic background
   - ☐ k. Religion
   - ☐ l. Political affiliation
   - ☐ m. Experience with various ethnic, socio/economic groups
   - ☐ n. Certification
   - ☐ o. Salary
   - ☐ p. Teaching experience
   - ☐ q. Names of administrative positions held (vice-principal, principal, curriculum supervisor)

- ☐ r. Years in administrative position in that school
- ☐ s. Other

2. Attitude toward students, school, programs
   - ☐ a. Attitude toward change
   - ☐ b. Relationship with teachers, other administrators
   - ☐ c. Concern with school's reputation
   - ☐ d. Attitude about school's problems
   - ☐ e. Attitude toward extracurricular activities
   - ☐ f. Attitude toward homework
   - ☐ g. Professional participation
   - ☐ h. Policy regarding student suspension
   - ☐ i. Promotion policy
   - ☐ j. Attitude toward remedial programs
   - ☐ k. Role perception, value, attitude, interest
   - ☐ l. Attitude toward student transfers (both in and out)
   - ☐ m. Support of academic programs
   - ☐ n. Other
3. Competence
   - ☐ a. Problem-solving ability
   - ☐ b. Personnel practices
   - ☐ c. Student attitude toward administrator
   - ☐ d. Knowledge of administrative theory
   - ☐ e. Implementation of sound administrative practices
   - ☐ f. Application of knowledge of teaching competencies
   - ☐ g. Budget management
   - ☐ h. Communication skills
   - ☐ i. Time-management ability
   - ☐ j. Decision-making ability
   - ☐ k. Ability to preside at faculty meetings, P.T.A.
   - ☐ l. Long-range planning ability
   - ☐ m. Supervisory skills
   - ☐ n. Teacher/counselor evaluations
   - ☐ o. Staff development
   - ☐ p. Rapport with community
   - ☐ q. Other

C. Parent and community variables
1. Personal characteristics
   - ☐ a. Geographic location
   - ☐ b. Racial mix of community
   - ☐ c. Population/size/rate of growth
   - ☐ d. Rural/suburban/urban/inner city community
   - ☐ e. Physical characteristics
   - ☐ f. Major economical/industrial employers
   - ☐ g. Special community characteristics
   - ☐ h. Community participation patterns
   - ☐ i. Political climate
   - ☐ j. Relevant 1970 census information on community and school attendance areas
   - ☐ k. Size of PTA/PTO
   - ☐ l. Public relations

- ☐ m. Economic index
- ☐ n. Number of adults in households
- ☐ o. Occupational patterns
- ☐ p. Parks and recreational facilities
- ☐ q. YMCA or YWCA
- ☐ r. Other

2. Current conditions
   - ☐ a. Age distribution
   - ☐ b. Birth rate
   - ☐ c. Crime and delinquency rates
   - ☐ d. Business and commercial enterprises
   - ☐ e. Industrial influence
   - ☐ f. Agricultural influence
   - ☐ g. Socio-economic condition
   - ☐ h. Transportation facilities
   - ☐ i. Recreational facilities for adults and youth
   - ☐ j. Cultural opportunities
   - ☐ k. Financial resources—tax base, response of citizens to taxation requests
   - ☐ l. Job opportunities (community, state, national)
   - ☐ m. Residence requirement
   - ☐ n. Voter participation
   - ☐ o. School-parent communication level
   - ☐ p. Citizen attendance at all governmental body meetings
   - ☐ q. Adult educational opportunities
   - ☐ r. Community resources available
   - ☐ s. Community resource file
   - ☐ t. Youth services
   - ☐ u. Probation and parole services
   - ☐ v. Speakers' bureau
   - ☐ w. Other
3. Attitude toward students and schools
   - ☐ a. Parents' degree of school/community involvement
   - ☐ b. Frequency of PTA attendance
   - ☐ c. Attitudes and expectations of business/community leaders, of civic organizations and civic leaders, of religious leaders, and local political officials including police officials
   - ☐ d. Attitudes and salient concerns expressed by community groups
   - ☐ e. Feelings about the school/teachers/administrators
   - ☐ f. Concern for student survival skills
   - ☐ g. Perceptions of educators/administrators
   - ☐ h. Participation in parent volunteer program
   - ☐ i. "Booster" clubs and their involvement in extracurricular activities
   - ☐ j. Newspaper publication of school activities, disciplinary actions, academic rankings
   - ☐ k. Number of visitors to schools
   - ☐ l. Other

4. Goals and priorities
   - ☐ a. Parents' desire for academic excellence
   - ☐ b. Parents' desire for children's attainment
   - ☐ c. Emphasis on college preparation, vocational education, both
   - ☐ d. Citizen response to school bond issues
   - ☐ e. Citizen response to school taxes
   - ☐ f. Other
5. Sociological context
   - ☐ a. Size and racial mix of PTA/PTO
   - ☐ b. Existence of parent/community advisory committee
   - ☐ c. Percentage of children transferred to private schools year before/year after desegregation
   - ☐ d. Dominant language spoken in homes
   - ☐ e. Number of single-parent homes
   - ☐ f. Community support/resources
   - ☐ g. Other

II. Programs
- A. Curricular programs
  - 1. Content and sequence
    - ☐ a. Curriculum areas
    - ☐ b. Extracurricular areas
    - ☐ c. Multicultural areas
    - ☐ d. Exceptional children education
    - ☐ e. Community education
    - ☐ f. Adult education
    - ☐ g. Free kindergarten
    - ☐ h. Drug/crime education
    - ☐ i. Senior citizen program
    - ☐ j. Vocational education
    - ☐ k. Counseling program
    - ☐ l. Inservice program
    - ☐ m. After-school programs
    - ☐ n. Bilingual education
    - ☐ o. Alternative education
    - ☐ p. Health/nutrient education
    - ☐ q. Career education
    - ☐ r. Sex education
    - ☐ s. Cultural knowledge
    - ☐ t. Youth programs
    - ☐ u. Dependence-independence training
    - ☐ v. Summer recreational programs
    - ☐ w. Standard children's literature
    - ☐ x. Examination and use of information
    - ☐ y. Acquisition of information and skills to enter world of work
    - ☐ z. Nurture of desire for continual learning
    - ☐ aa. Development of ability to adjust to changing demands of society
    - ☐ bb. Use of leisure time

- ☐ cc. Development of skills in management of resources and man's environment
- ☐ dd. Family living skills
- ☐ ee. Vocational rehabilitation
- ☐ ff. Upward Bound Programs
- ☐ gg. Other

2. Strategies and methods
    - ☐ a. Disciplinary program
    - ☐ b. Media program
    - ☐ c. Values clarification
    - ☐ d. Use of scientific method to solve everyday problems
    - ☐ e. Appreciation of arts and crafts
    - ☐ f. Behavior modification and attitude toward change through reading program
    - ☐ g. Classification and reasoning
    - ☐ h. Creative flexibility and fluency
    - ☐ i. Cultural insight through a foreign language
    - ☐ j. Experimentation in science
    - ☐ k. Expressive skill in arts and crafts
    - ☐ l. Formulation of generalized conclusions in science
    - ☐ m. Academic-engaged time
    - ☐ n. Individualized approaches
    - ☐ o. Large group instruction
    - ☐ p. Small group instruction
    - ☐ q. Scheduling
    - ☐ r. Long-range curriculum plans and objectives
    - ☐ s. Student evaluation used for continual instructional planning and improvement
    - ☐ t. Multi-cultural approach
    - ☐ u. Creative self-expression through various media
    - ☐ v. Accelerated programs
    - ☐ w. Remedial programs
    - ☐ x. Other
3. Resources/facilities
    - ☐ a. Library
    - ☐ b. Number of library books
    - ☐ c. Language lab
    - ☐ d. Gymnasium
    - ☐ e. Auditorium
    - ☐ f. Playground equipment
    - ☐ g. Reading lab
    - ☐ h. Media equipment
    - ☐ i. Business locations willing to hire student trainees
    - ☐ j. Technology (use of TV, radio, etc.)
    - ☐ k. Tutoring services
    - ☐ l. Supplementary books, films, etc.
    - ☐ m. Other

B. Lesson, unit, and module

1. Content and sequence
    - ☐ a. Capitalization

    - ☐ b. Citizenship
    - ☐ c. Comprehension of equations and inequalities, number principles, sets, positional notation
    - ☐ d. Critical reading
    - ☐ e. Geometric facility and vocabulary
    - ☐ f. Grammar and usage
    - ☐ g. Knowledge of governments and history
    - ☐ h. Decimals and percentages
    - ☐ i. Fractions
    - ☐ j. Integers
    - ☐ k. Foreign language (oral and reading comprehension)
    - ☐ l. Oral reading
    - ☐ m. Penmanship
    - ☐ n. Phonetic recognition
    - ☐ o. Health and safety principles
    - ☐ p. Punctuation
    - ☐ q. Vocabulary
    - ☐ r. Literary devices
    - ☐ s. Word meanings—roots, prefixes, suffixes, syllables
    - ☐ t. Main ideas and details
    - ☐ u. Research skills in social studies
    - ☐ v. Graphs and tables
    - ☐ w. Reference skills
    - ☐ x. Written expression
    - ☐ y. Reading
      - ☐ (1) Thinking-feeling process
      - ☐ (2) Understanding of how children process visual symbolic information
      - ☐ (3) Use of reading as skill tool
      - ☐ (4) Reading in content areas
      - ☐ (5) Decoding
      - ☐ (6) Comprehension
    - ☐ z. Other
  2. Strategies and methods
    - ☐ a. Classification and generalization in science
    - ☐ b. Hypothesis formation in science
    - ☐ c. Independent applications of mathematical skills and writing skills
    - ☐ d. Inference-making from reading selections
    - ☐ e. Observation and discipline in science
    - ☐ f. Relational-implicational reasoning—analogies and syllogisms

III. Organization
  A. Governance
    1. Policies
      - ☐ a. Grading Policies
      - ☐ b. Dress/hair codes
      - ☐ c. Community standards
      - ☐ d. Professional certification requirements
      - ☐ e. State/local graduation requirements

    - ☐ f. Budgetary policies by funding source
    - ☐ g. Personnel policies
  - 2. Composition
    - ☐ a. Local school board
    - ☐ b. State Board of Education
    - ☐ c. Ethnic distribution by staff by position
    - ☐ d. Staffing patterns
    - ☐ e. Student participation
- B. Administration
  - 1. Personnel
    - ☐ a. Assignments of professional and non-professional personnel
    - ☐ b. Staff development plans and procedures
    - ☐ c. Teacher tenure
    - ☐ d. Guidance counselors
    - ☐ e. Special teachers for art, music, speech, etc.
    - ☐ f. Librarian
    - ☐ g. Nurse
  - 2. Facilities
    - ☐ a. Typology of school—traditional, bureaucratic, progressive, experimental
    - ☐ b. Planned/actual size of school
    - ☐ c. Physical design of school and playground
    - ☐ d. Transportation plan for students; busing overall and by race; amount of time
    - ☐ e. Adequacy of facilities
      - ☐ (1) Acreage of plant site
      - ☐ (2) Age of building and equipment
      - ☐ (3) Cafeteria/hot meal kitchen
      - ☐ (4) Athletic field
      - ☐ (5) Infirmary or health room
      - ☐ (6) Adequate air conditioning/heating
    - ☐ f. Degree of vandalism
  - 3. Students
    - ☐ a. School enrollment plan
    - ☐ b. Percentage of transients
    - ☐ c. Tracking
    - ☐ d. Testing/placement
    - ☐ e. Annual audit report
    - ☐ f. IQ Testing
  - 4. Instruction
    - ☐ a. School book-turnover
    - ☐ b. Remedial programs
    - ☐ c. Mainstreaming
    - ☐ d. State accreditation
    - ☐ e. Regional accreditation
    - ☐ f. Achievement testing
    - ☐ g. Interest testing
    - ☐ h. Other

C. Management climate
  1. School satisfaction
    - ☐ a. Drop-out rate—causes and characteristics
    - ☐ b. Academic plan of education
    - ☐ c. Social plan of education (extracurricular, counseling, etc.)
    - ☐ d. Disciplinary records
    - ☐ e. Crime rate
    - ☐ f. Attitude and philosophy of administrators (classified by typology)
    - ☐ g. Expectations and concerns for pupil performance
    - ☐ h. Pacing instruction
    - ☐ i. Locus of responsibility for education—typology: autocratic, shared goals, laissez-faire
    - ☐ j. School values and norms
    - ☐ k. School spirit
    - ☐ l. Role understanding
    - ☐ m. Attitude toward change
    - ☐ n. Teacher tenure
    - ☐ o. Teacher turnover
  2. Interpersonal relations
    - ☐ a. Teacher interaction, involvement in planning for education
    - ☐ b. Behavior of school cafeteria workers, janitors toward black, white students and faculty
    - ☐ c. Interracial groupings, friendships among faculty
    - ☐ d. Tension in behavior patterns of faculty/staff
    - ☐ e. Degree of camaraderie between faculty and students

APPENDIX B

Selected Sources for Needs Assessment

During the course of writing this publication, the authors found several documents to be particularly helpful. For several varying reasons, readers will also find that their understanding and implementation of needs assessment will be enhanced by study of and reference to the publications described in this section.

1. The November, 1977, issue of *Educational Technology*, 17 (11), was a special issue on needs assessment. Particularly enlightening are articles entitled "A Possible Taxonomy of Needs Assessment," by Roger A. Kaufman; "The Politics of Needs Assessment," by Fenwick W. English; "Assessing Learner Needs with Criterion-Referenced Tests: A Working Approach," by Ray L. Sweigert, Jr.; "Needs Assessment Kits, Models and Tools," by Belle R. Witkin; "Needs Assessment and Instructional Designs," by Walter Dick and Lou M. Carey; and "Applications of Needs Assessment in the Public Schools: Three Case Studies," by Raymond G. Melton.

2. The *Bucks County Quality Educational Program Study* was an early needs assessment project. Ten goals were determined for the state of Pennsylvania, and instruments for pupil self-assessments and general needs assessment were developed and outlined in a series of twelve booklets which may be studied and modified for current studies. The booklets are available from the Office of the Bucks County Superintendent of Schools, Division of Educational Services, Cross Keys Building, Routes 611 and 313, Doylestown, PA 13901.

3. Phi Delta Kappa has compiled a *Workshop Packet for*

Educational Goals and Objectives, subtitled, *A Program for Community and Professional Involvement*. A listing of the packet's contents fails to convey the significance of the enclosed materials. With goal cards, a display board, and goal rating discs, the packet includes manuals and rating sheets.

The manuals include very specific instructions on the writing of performance objectives, and a myriad of forms which can be used without modification in completing a basic needs assessment. The PDK materials are clearly written, and are capable of being used without an extensive background in statistics or data processing. The packet may be obtained from the Commission on Educational Planning, Phi Delta Kappa, Inc., P.O. Box 789, Bloomington, IN 47401.

4. The University of California at Los Angeles, through its Center for the Study of Evaluation, has produced the *CSE/Elementary School Evaluation KIT*. Designed for use by principals, the KIT contains goal cards, rating mats, questionnaires, goal-rating forms and a guidebook. Particularly significant in the CSE KIT is its rating of standardized tests. The guidebook also provides a sound theoretical outline of the concepts of needs assessment (particularly as applied to the elementary setting). The KIT was first published by Allyn and Bacon, Inc., Longwood Division, 470 Atlantic Avenue, Boston, MA 02210. Later materials can be obtained by contacting the Center for the Study of Evaluation, UCLA, Los Angeles CA.

5. Belle R. Watkin's article in the special issue of *Educational Technology* was a summary and updating of her valuable book, *An Analysis of Needs Assessment Techniques for Educational Planning at State, Intermediate, and District Levels*. The book contains three sections, the State of the Art in Needs Assessment, exhaustive descriptions of existing needs assessment models, and how to do a needs assessment. For its concise descriptions of various models, the Witkin book is still valuable; at the time of its publication (1972), it represented a significant effort. The Office of the Alameda County Superintendent of Schools, Hayward County, CA 94540, published the book.

6. The *NAP Game: Needs Assessment Package Game* (B.

James, S. Freedman, and B. Huckaby) is a "Monopoly" type game for illustrating the concepts of needs assessments. A simulation/gaming approach, the *NAP Game* includes a playing board, cards, discs, and instructions for an exercise which will help train needs assessors in a given situation. It is available from the Florida State University, Teacher Education Projects, 415 North Monroe Street, Tallahassee, FL 32301.